NOVEMBER, 1940

ELECTRICAL SOUTH

UNIVERSITY OF FLORIDA
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HUNTER is preparing to enter its Fifty-Fourth year in the exclusive production of desk, wall, ceiling, exhaust fans and ventilating units.

In addition to the well-known ceiling and desk fans, long established in the world markets, HUNTER engineers have developed a consistent demand for its new attic and commercial cooling systems.

Winter surveys of stores, hotels, and apartments will be made, along with expert recommendations, without obligation.

HUNTER FAN & VENTILATING CO., INC.

Factory: FULTON, N. Y.

General Sales Offices: Memphis, Sterick Bldg. *Eastern Sales Office:* New York, 92 Warren Street

Sales Offices:

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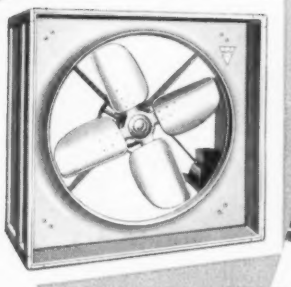
LOS ANGELES NEW ORLEANS PHILADELPHIA PITTSBURGH ST. LOUIS

PARKVIEW PHARMACY
KANSAS CITY.



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HAVENHILL APARTMENTS
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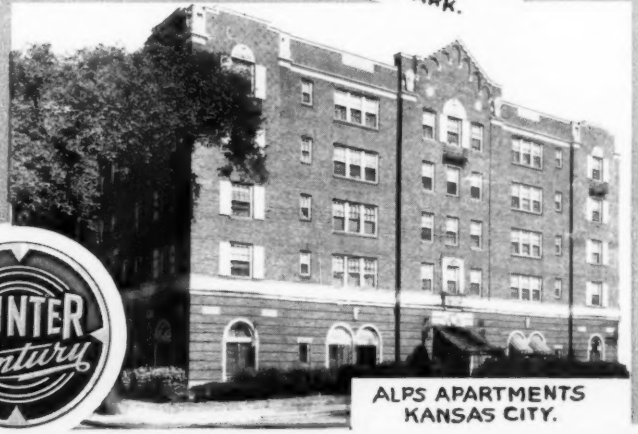
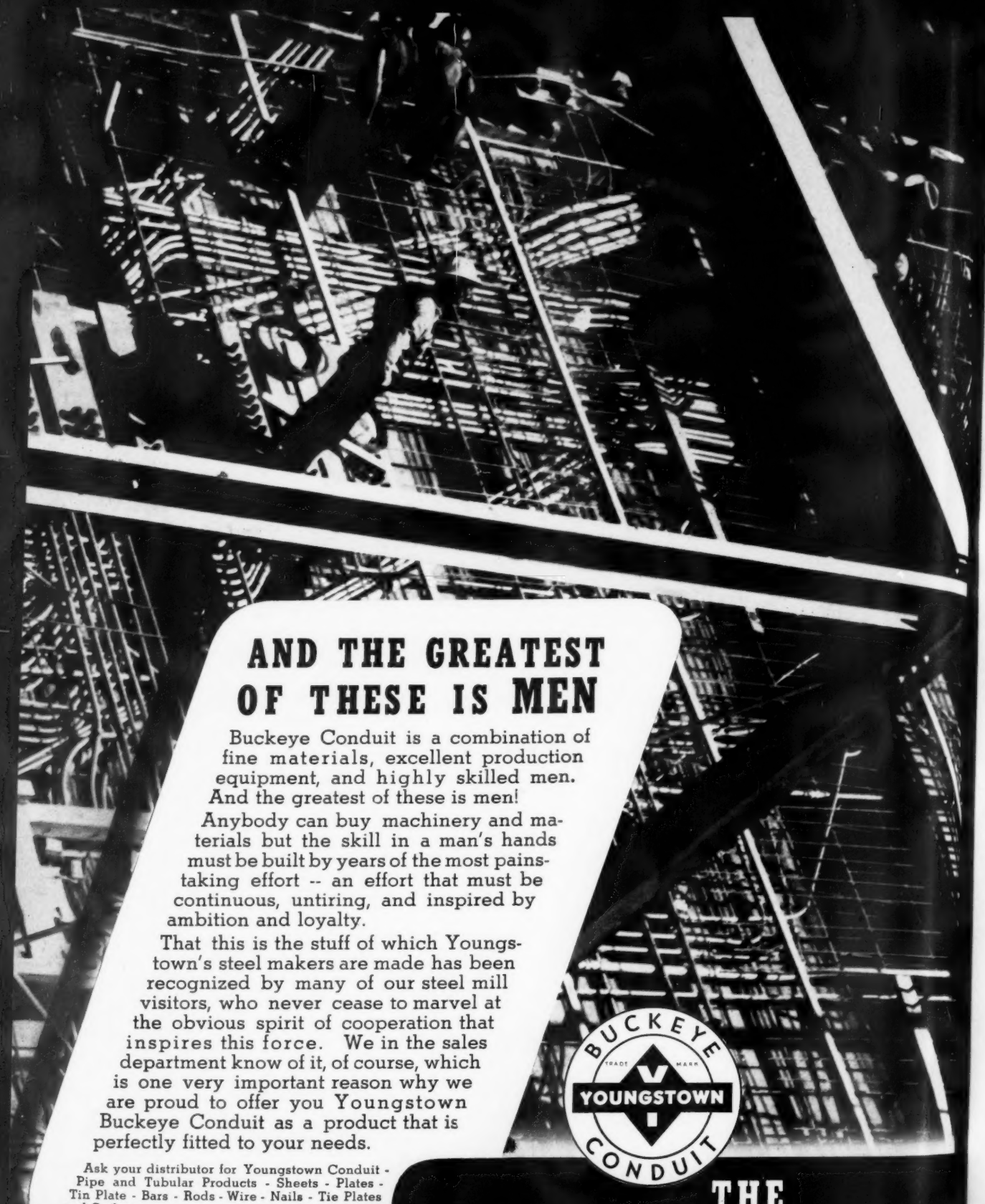
HUNTER Century



ALPS APARTMENTS
KANSAS CITY.



AND THE GREATEST OF THESE IS MEN

Buckeye Conduit is a combination of fine materials, excellent production equipment, and highly skilled men. And the greatest of these is men!

Anybody can buy machinery and materials but the skill in a man's hands must be built by years of the most painstaking effort -- an effort that must be continuous, untiring, and inspired by ambition and loyalty.

That this is the stuff of which Youngstown's steel makers are made has been recognized by many of our steel mill visitors, who never cease to marvel at the obvious spirit of cooperation that inspires this force. We in the sales department know of it, of course, which is one very important reason why we are proud to offer you Youngstown Buckeye Conduit as a product that is perfectly fitted to your needs.

Ask your distributor for Youngstown Conduit - Pipe and Tubular Products - Sheets - Plates - Tin Plate - Bars - Rods - Wire - Nails - Tie Plates and Spikes

26-15C

BUCKEYE TRADE MARK YOUNGSTOWN CONDUIT

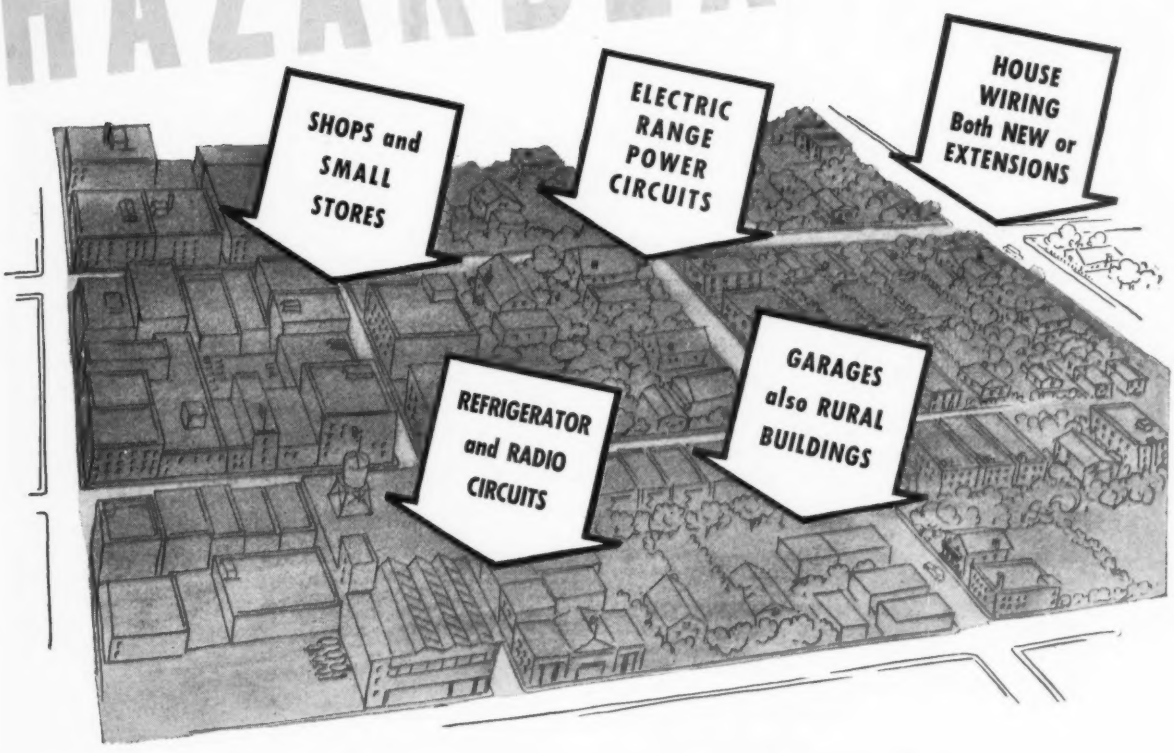
Buckeye Conduit in the new power house, Possum Kingdom Dam, Brazos River, Texas

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon and Alloy Steels

General Offices - YOUNGSTOWN, OHIO

HAZARDEX


SHOPS and SMALL STORES
ELECTRIC RANGE POWER CIRCUITS
HOUSE WIRING Both NEW or EXTENSIONS
REFRIGERATOR and RADIO CIRCUITS
GARAGES also RURAL BUILDINGS

All Around the Town

For general purpose wiring, Hazardex non-metallic sheathed cable provides economical and simple installations within the limits prescribed by the National Electrical Code.

Hazardex is light, therefore easy to handle. Simple and sturdy in construction, it may be installed quickly and at low cost, using standard wiring devices. Hazacode rubber insulation, N.E.C. Standard, 600 volt thickness, gives high insulation resistance. Heavy, closely woven cotton braid saturated with a moisture-repelling and flame-resisting compound gives needed covering protection.

HAZARDEX WITH PERFORMITE INSULATION

Performite Super-Aging, Heat-Resisting Rubber Insulation (which meets Federal Spec. JC-106) is available on Hazardex on special order. This "super" insulation is stronger, tougher and more elastic than "code" insulation, more resistant to heat and is Super-Aging. Hazard Insulated Wire Works, Division of The Okonite Co., Wilkes-Barre, Pa. Offices in principal cities.

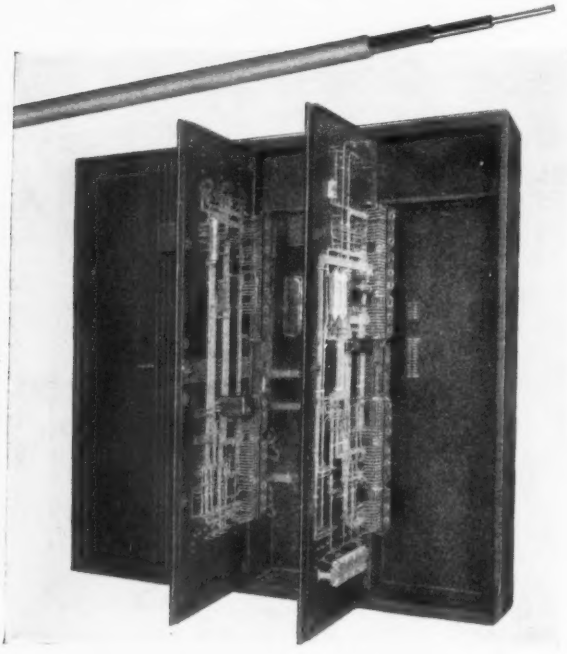
HAZARDEX

NON-METALLIC SHEATHED CABLE

ELECTRICAL SOUTH is published monthly by W. R. C. Smith Publishing Co., Marietta, Ga., and Atlanta, Ga., U. S. A.
Subscription rates United States and Possessions $1.00 for one year; $2.00 for three years; Canada $1.50 per year; Foreign Countries $2.00 per year.
Entered as second class matter at postoffice, Marietta, Ga., under Act of March 3, 1879.
Volume 20 Number 11

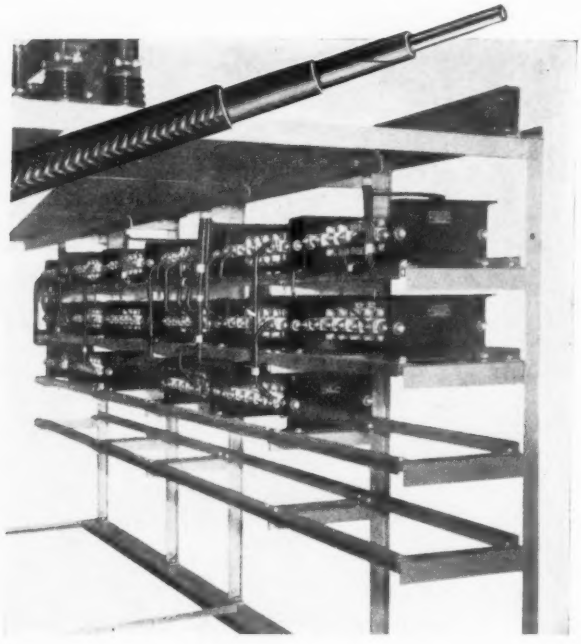
CABLES BUILT TO HANDLE SPECIALIZED JOBS . . . . .

YOU'LL FIND THEM IN THE G-E DELTABESTON CATALOG



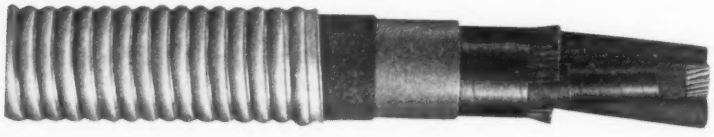
DELTABESTON SWITCHBOARD WIRE

Won't burn—Waterproof—Extremely flexible—Cuts wiring time—Facilitates installation due to smaller over-all diameter—High dielectric strength due to synthetic insulation—Takes sharp bends easily, without harm to insulation.



DELTABESTON RESISTOR CABLE

Outstanding heat resistance—Easy to work with—Tinned copper conductor—Synthetic insulation—Felted, purified asbestos layer, flame-, heat-, moisture-resisting—Purified asbestos outer braid.



STATION CABLE

Built for a particular central station application—Answers four demands:

1. Permits high current densities during peak load periods.
2. Resists extreme ambient temperatures.
3. Flameproof insulation—isn't damaged by severe treatment.
4. Interlocking armor eliminates need for rigid conduit.

Here's the new General Electric Deltabeston Wire and Cable Catalog. The answers to your wiring problems are in it. Get a copy by writing to Section Y-0211, Appliance and Merchandise Department, General Electric, Bridgeport, Conn.

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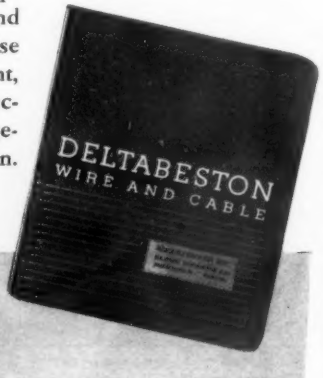
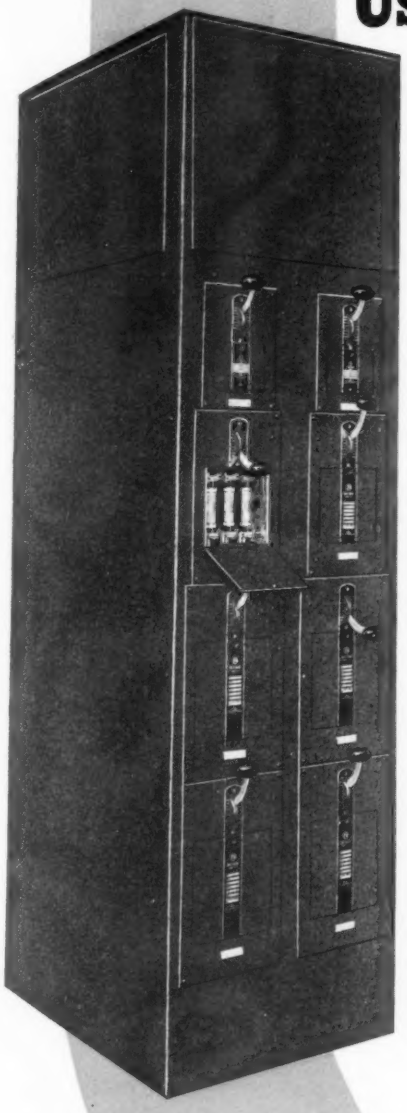


GENERAL ELECTRIC

Use (FA) Shutlbrak Switches

singly—or in compact panelboard or switchboard . . . . .



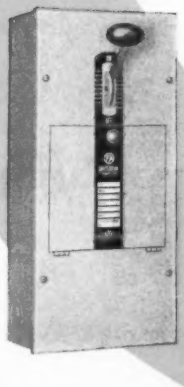
This new safety-type, one-piece-panel switchboard is ideal for service entrance, motor control, and other power and light distribution installations. Designed to occupy a minimum of space, each steel panel is self-contained, with all of the switch units connected to the busbars of that section. Each switchboard panel unit is individually enclosed, with a junction box built into the top of the panel. Any number of the switchboard panel units may be joined side by side, or otherwise arranged to fit available space.

The (FA) Shutlbrak Switch

of which these switchboards and panelboards are assembled, is a heavy duty industrial switch, front operated. *It embodies entirely new ideas in both design and construction* . . . Its quick make and quick break connections are *held under compression*, which reduces heating to a minimum . . . The line and load connections are enclosed in a completely insulated shuttle, which contains the movable contacts. There is an arc-resisting barrier between line and load contacts *at all times* . . . All contact surfaces are silver-plated, to prevent oxidation . . . The switch is available either with or without an interlocking arrangement between the operating switch lever and the door of the fuse compartment . . . Capacities at present: 30 to 200 amp. inclusive, for 250 volts AC or DC, and 575 volts AC, in 2, 3 and 4 poles. (Larger capacities in preparation.) Each switch is rated in horsepower. Approved by Underwriters' Laboratories as an Enclosed Switch.

For More Complete Information

write for Bulletin 59. (FA) Sales-Engineers will be glad to help you with your electrical engineering problems — without obligation. Write for name and address of the one nearest you . . . Frank Adam Electric Co., St. Louis, Mo.



Switchboard Panel Unit above has 2—60 amp., 2—100 amp. and 4—200 amp. switches in a 28" width.

The switch-box has ample room at top, bottom and behind the switch unit for wiring and connecting space. It may be had for either surface or flush mounting.

EST. 1891 THE SIGN OF A FA BETTER JOB

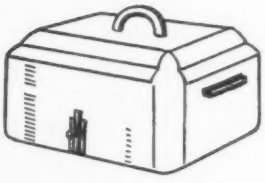
Frank Adam

ELECTRICAL PRODUCTS

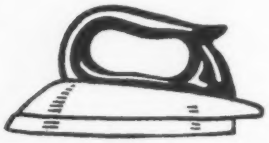
for Industry

FRANK ADAM ELECTRIC CO.
ST. LOUIS, MO. U.S.A.

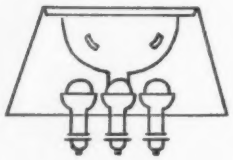
Another STEP IN MODERN METERING..



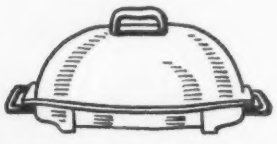
ELECTRIC ROASTER



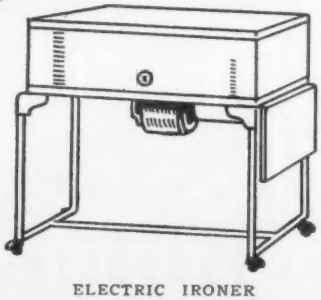
1000 WATT IRON



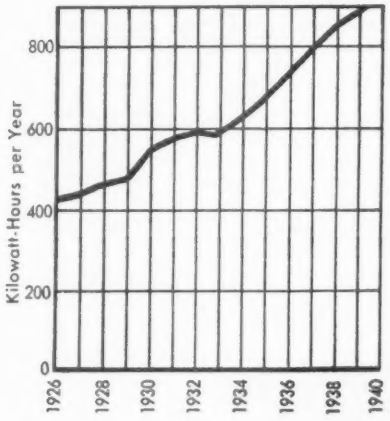
I. E. S. LAMPS



ELECTRIC BROILER



ELECTRIC IRONER



Up goes the curve! As shown above, the average residential consumption of kilowatt-hours has more than doubled since 1926. Home appliances are almost entirely responsible for these gains. Modern merchandising promotion can be expected to keep this trend continually upward. Considerable revenue losses often result from metering these added appliance loads with old, uncompensated meters . . .

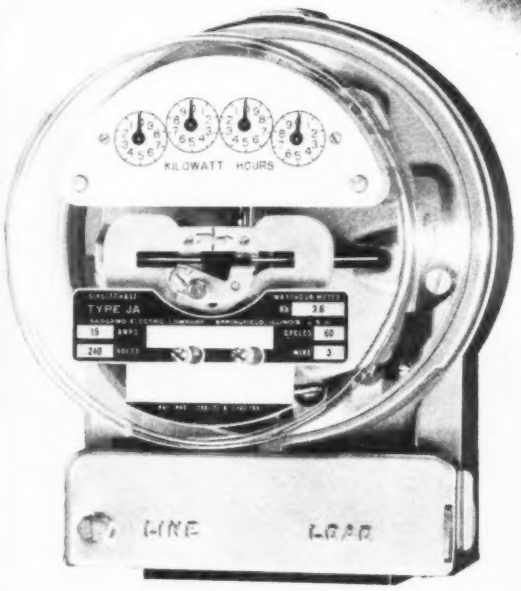
NOW comes another step in modern metering . . . the Sangamo Type J Meter. Taking full advantage of recent metallurgical and engineering developments, this meter incorporates... a damping magnet system highly resistant to surges . . . a bearing system requiring no lubrication . . . raised insulation values to meet the more severe operating conditions of outdoor installations . . . and wide range load and temperature compensation.

These features, summed up, have but one purpose: to register accurately the loads imposed by today's diversified electrical appliances. In brief, use of the Type J Meter results in full revenue for all load gains.

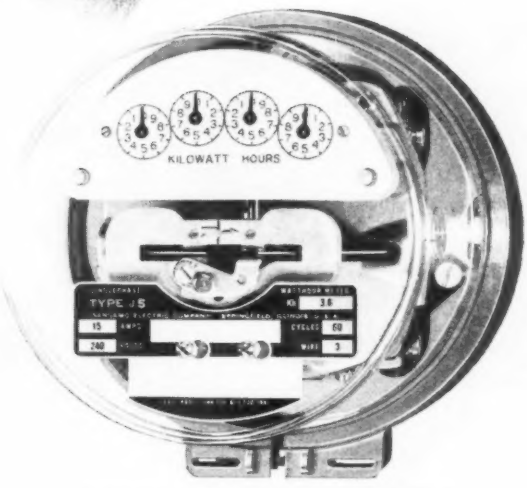
PAYLOADS WHEN METERED WITH MODERN METERS

SANGAMO ELECTRI

THE SANGAMO TYPE J METERS

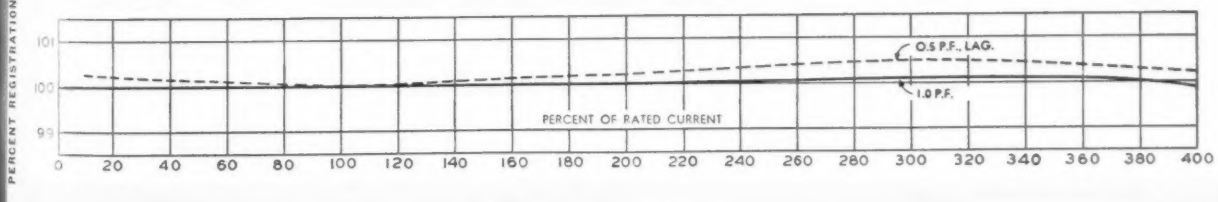


SANGAMO TYPE JA WATTHOUR METER



SANGAMO TYPE JS WATTHOUR METER

AVERAGE LOAD CHARACTERISTIC CURVE OF THE TYPE J METER



COMPANY SPRINGFIELD ILLINOIS

NO CRYSTAL GAZING,

but we DO see into the future

Chemical and metallurgical research in cable materials predetermines operating behaviour of new designs and constructions

Behind the quality of Anaconda stands the painstaking and precise analysis of the trained engineer and research chemist. Searchingly, unceasingly, they gaze into the future . . . the future performance of every inch of Anaconda Wire and Cable . . . but *their* tools are the exact and unimpeachable instruments of science.

Their findings, with numerous other tests, both chemical and physical, unite to form a strict manufacturing control from which Anaconda develops new and better products to meet and exceed the ever-increasing needs and specifications of the customer. 40356

ANACONDA
from mine to consumer

Keen eyes peer through this metallographic microscope looking for flaws and weaknesses in metal samples. Only those that pass this man's expert scrutiny . . . those that measure up to Anaconda's standards . . . are passed.

•

The "cocktails" this technician mixes are tasty libations for Anaconda customers. For, as a result of his mixtures, Anaconda wires and cables perform more efficiently, last years longer.

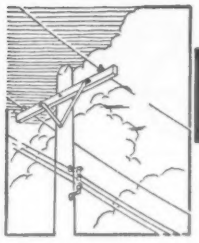
USE MODERN IMPROVED **Anaconda Wire & Cable**

ANACONDA WIRE & CABLE COMPANY, General Offices: 25 Broadway, New York City; Chicago Office: 20 North Wacker Drive

A Subsidiary of Anaconda Copper Mining Company. Sales Offices in Principal Cities

NOVEMBER, 1940

Volume 20 No. 11



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Published Monthly by
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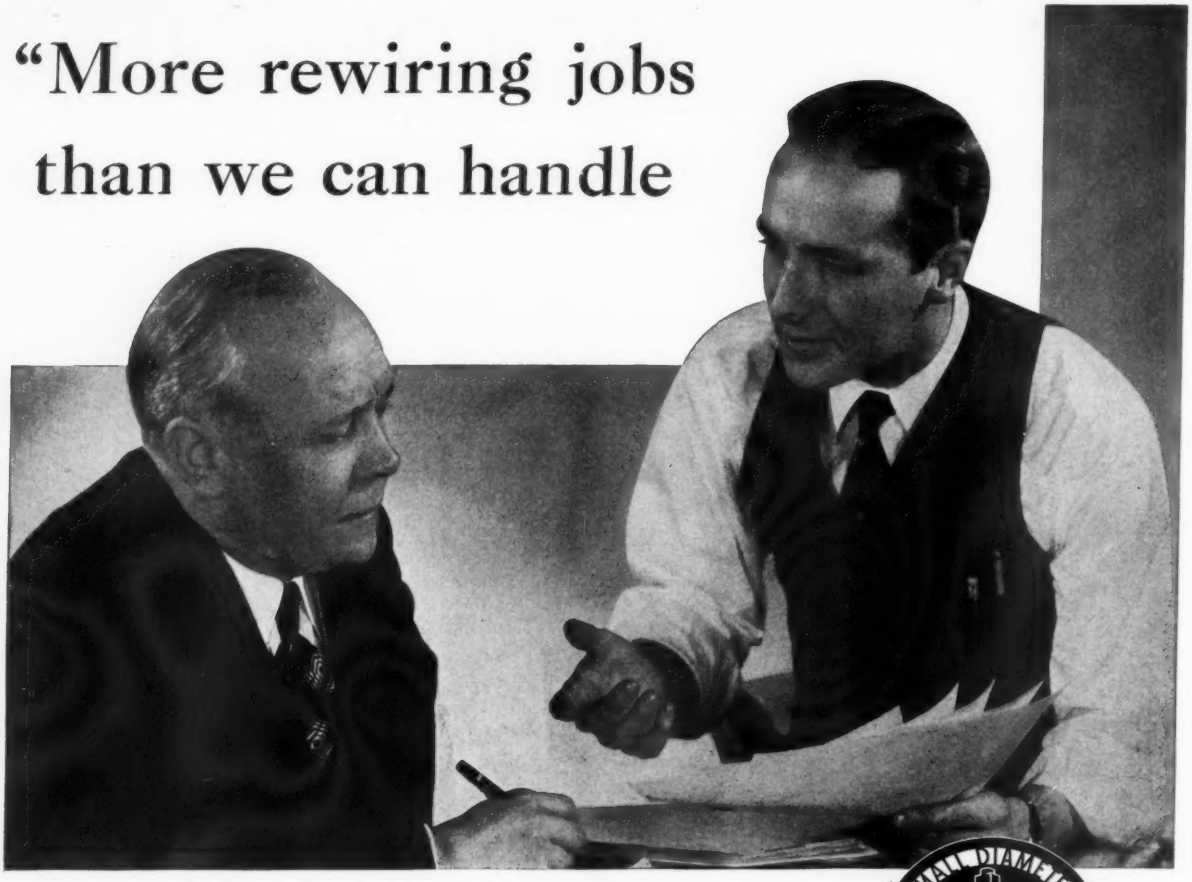
"More rewiring jobs than we can handle



thanks to these new AMPEROX *Small-Diameter Building Wires"*

"BUILDING operators in this district were up against it. They were losing tenants because they couldn't supply enough electrical capacity. And their old conduits were loaded to the hilt. We could understand why they didn't want to go to the expense and nuisance of ripping out the old conduits and installing new and larger ones.

"But that's all changed now. These new Amperox Small-Diameter Building Wires make it possible to double or even triple present current-carrying capacity without over-filling the old conduit. In one rewiring job, we cut the estimated cost from $70,000 to $10,000; and in a smaller job, from $408 to $185.

"Now we're getting more rewiring jobs than we can handle. With costs down to a fraction of what they were before, building operators are installing adequate wiring without waste of time."

COMPLETE LINE—American Steel & Wire Company produces a complete line of small-diameter building wires, including Amperox heat-resistant grade (Type RHT), Amerite performance grade (Type RPT), and Ampyrol synthetic insulated (Type SN). All are produced with the same quality and precision which characterize electrical wires and cables by American Steel & Wire. Write for data.

SMALL DIAMETER AMPEROX BUILDING WIRES

Comparative Diameters

Standard Type R Code Wire

	8	10	12	14
Rubber	4/64"	3/64"	3/64"	3/64"
O.D.	.290"	.230"	.210"	.190"

Amperox Small-Diameter Wire Type RHT

	8	10	12	14
Rubber	3/64"	2/64"	2/64"	2/64"
O.D.	.250"	.200"	.180"	.160"

Approved by Underwriters' Laboratories

AMERICAN STEEL & WIRE COMPANY

Cleveland, Chicago and New York

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* — United States Steel Export Company, New York

UNITED STATES STEEL

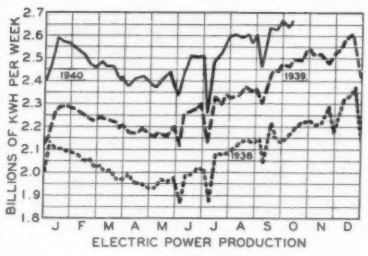
Electrical Business Trends

ALTHOUGH unit sales of electrical refrigerators declined seasonally during the month of August, total sales for the month exceeded those of any August on record. The unadjusted N.E.M.A. index for August declined 25.8 points from the July index of 152.7 to 126.9. The index for August 1939 was approximately 55.

Appliance dealers in the South enjoyed their share of this record refrigeration business. Sales in the South Atlantic States for the month of August 1940 amounted to 24,398 units as compared to 10,205 in August 1939, an increase of approximately 140%. In the East South Central States August 1940 sales totaled 10,988 units, representing an increase of 168% over the 4,171 units sold in these states in 1939. Increased sales in West South Central States amounted to 110.%.

August was the seventh month this year in which a new refrigerator unit sales record has been achieved.

Major appliances, other than refrigerators, rose slightly above



ELECTRIC POWER PRODUCTION

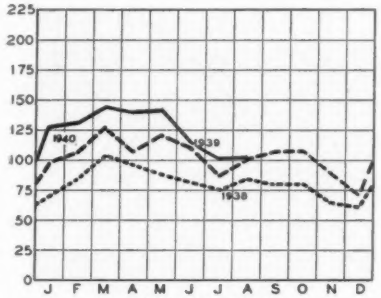
Per Cent Changes 1940 Over 1939	Week Ending Oct. 26	Week Ending Oct. 19
New England	+ 3.7	+ 3.5
Middle Atlantic	+ 5.6	+ 5.8
Central Industrial	+ 9.2	+10.6
West Central	+ 5.4	+ 5.0
Southern States	+ 6.9	+ 7.6
Rocky Mountain	+ 0.4	+ 0.1
Pacific Coast	+ 7.2	+ 7.0
Total	+ 6.8	+ 7.7

July and continued ahead of normal.

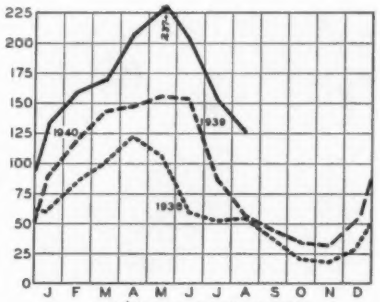
August orders for motors and generators eased off from their July position but ran ahead of last year and established a new August record. Orders received for transmission and distribution equipment declined but remained ahead of all months of 1939. Sales billed for industrial materials set a new record for August and also for 1940.

Electric power production has continued at levels varying from 6% to 8% over corresponding weeks of 1939. For week ending October 19, power production hit another all-time high at 2,686,799,000 kilowatt-hours.

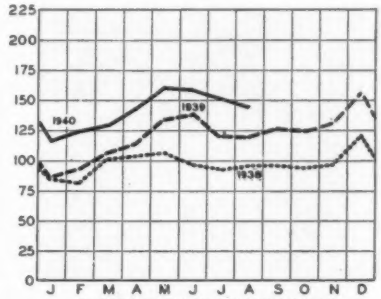
Building construction in Southern States during the summer months has continued at a rapid pace. During the month of July 1940, last month for which complete data are available, permit valuation for all construction in Southern States amounted to approximately 25% of total for the country as a whole. In percentage gain over the previous month, the South outstripped all other sections of the country. Percentage gain in permit valuation in July 1940 over June amounted to 19.9% for the country as a whole, while the gains in the South for this period were: South Atlantic, 45.0%; East South Central, 75.7%; and West South Central, 30.6%, respectively.



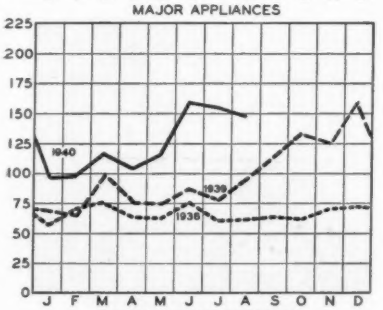
MAJOR APPLIANCES



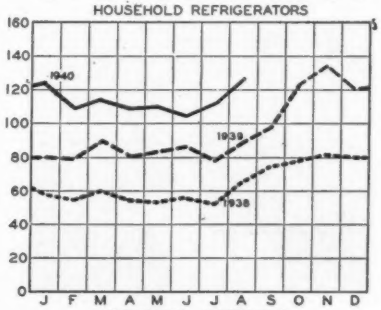
HOUSEHOLD REFRIGERATORS



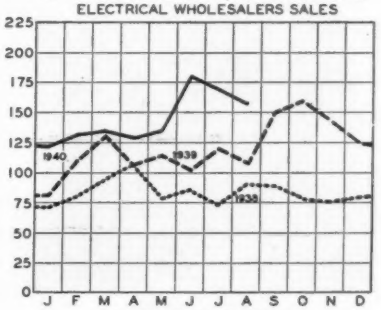
ELECTRICAL WHOLESALERS SALES



MOTORS AND GENERATORS



INDUSTRIAL MATERIALS



DISTRIBUTION EQUIPMENT

All of the above indexes of electrical business activity are based on figures available from the National Electrical Manufacturers Association, except the index of electrical wholesalers' sales which is based on data published by the United States Department of Commerce. The indexes on motors and generators and distribution equipment are based on orders received, while the index on industrial materials, including such items as electrical porcelain, mica, vulcanized fiber and laminated products, is based on sales billed. The index on distribution equipment includes such items as high voltage insulators, paper cable, power switching equipment, power distribution transformers, and varnished cambric cable. The index on major appliances does not include refrigeration. The index on household refrigerators includes complete household refrigerators, separate household evaporators, and separate systems of 1/4 horsepower or less. The index on electric power production is based on data released by Edison Electric Institute. 1936 averages taken as 100%.

Dramatic Demonstrations Boost "Small" Appliance Sales

1. **Saleslady: "This toaster set is a delightful gift of many uses."**
2. **Saleslady: "It simplifies entertaining."**
3. **Saleslady: "For breakfast use or late evening snacks, it's always popular.**

By Ward Warburton

"THE KEY to market development for any electrical appliance is its adaptability to 'use-value' demonstration," says Sue Adeeb, manager of the Good Housekeeping Shop, electrical appliance dealer of Miami, Florida. "Since the desire for ownership on the part of prospective buyers heightens with the number of uses to which the appliance can be put, no appliance offers more possibilities along these lines than do the modern toaster sets."

Mrs. Adeeb's enthusiasm for what may be termed "hostess appliances" stems from a broad experience in electrical merchandising. Previous to her present connection with the Good Housekeeping Shop, she was associated with the Westinghouse Electric and Manufacturing Company as a home economist, demonstrating appliance use-values at the New York World's Fair and in some of the nation's largest department stores. Instruction of store personnel in this technique was a part of the latter assignment.

"Even the earlier types of electric toaster," continues Mrs. Adeeb, "quickly popularized its product as a staple item on the breakfast menu. Now, mechanical improvements have given toast an around-the-clock rating as a 'de luxe' eatable. It associates with the best there is in the refrigerator; and greatly extends the opportunity for selling its 'use-value' to the prospective purchaser.

4. Saleslady: "This automatic feature outmodes burned toast and fingers."

5. Saleslady: "It's so easy to keep clean."

6. Customer: "Just what I need! Please send it to this address."

"Modern streamlining and ensembling of the appliance itself have stepped up its social standing. Acquired by purchase or gift, it is a welcome addition to the entertaining facilities of any home. Every hostess knows that much of the pleasure to be derived from even the most modest effort at entertainment of guests depends upon the possession of the proper appurtenances to do it well. She may have the finest of silver, china and linen but if she has to apologize for her electrical appliances, the evening in her opinion is a failure.

"On the other hand, one of the new 'hospitality' sets with its gleaming chromium toaster and colorful accessories, highlighted by the soft brown wood of serving and lap trays, will offset effectively whatever else may be lacking in the service setup. As a 'glamor gift' it therefore offers possibilities no 'on-his-toes' electrical appliance dealer can afford to overlook.

"The less elaborate sets, too, have plenty of eye-appeal and a high rating in use-value. Having fewer accessories and minus certain refinements in toaster construction, they will fill a definite lack in many a household.

"The Holiday gift-buying season is almost upon us. Some statistician probably could tell us how many persons in any specified city or town will buy gifts costing $10 to $25 but without these figures we know that the number is considerable. All of these people are our prospective customers. To get our share of this business, however, we have to 'dramatize' our toaster sets; make them more desirable to the donor than some other type of merchandise in the same price range.

"No matter how attractive an appliance may be or how many uses it may have, it requires effective display and efficient demonstration to transfer it from 'inventory' to 'cash sales.' Basically, good display involves three factors: *(Continued on page 49)*

Small appliances serve a two-fold purpose: a small display stock can be turned ten or more times a year at margins which contribute substantially toward overhead expense, and can produce store traffic of special value to the major appliance department. Posing for the photos are Mrs. Sue Adeeb, (without hat) manager of Good Housekeeping Shop, Miami, and Mrs. Lockwood.

CHRISTMAS SALES

The tremendous competition for the shopper's dollar at Christmas makes the appliance dealer's job more difficult than usual.

To hold his own in sales volume he must plan carefully his Christmas sales program.

Cooperative Displays Help Dealer Sales

IT takes more than words to drive home to people the selling point that electrical gifts are the ideal gifts for Christmas. Knoxville electrical dealers realized that after the benefits of displays were seen.

They unite in their selling campaigns and they use the windows of the City of Knoxville Electric Power and Water Board building, centrally located, for joint displays. Separate stores too are allotted use of the windows to display their merchandise for a certain time. And, of course, they make good use of their own windows.

One of their effective Christmas window displays shows electric clocks, percolators, radios, toasters, mixers, irons, waffle irons, roasters, razors, lamps and other electrical merchandise. The Electric Power Board itself does not sell any merchandise, cooperating instead with dealers to help them make sales, and the dealers furnish the merchandise for display.

The display of electrical gifts, shown below, had a painted background sign, the size of the window, which showed Santa Claus with an arm around a pretty housewife and pointing to the gifts in the window. On the sign was this lettering: "For a Practical Person with a Sentimental Side! Electrical Gifts. Good the Year Around." At the side of Santa Claus too were pages from the calendar, with tinsel from each leaf to some gift.

The display fairly shouted "Christmas!" to passersby but emphasized the advantages of electric gifts for year-around use. Some dealers have found that it takes something like that to get people to buy. People like to be shown. If they are merely told that electrical gifts are appropriate "for a practical person with a sentimental side" then they take it in rather an unimpressed way. But when they see the suggested gifts and the thought is emphasized that such gifts are good for year-around use, then they buy.

The cooperation of the City Electric Power Board is proving most helpful to all dealers. Electricity is provided free for elaborate festoons of multi-colored lights. Electrically-illuminated ropes of green laurel and red wreaths are strung late in November along the curbing in front of the stores, and at street intersections great festoons cross each other diagonally across the street with a huge ornament in the center.

Between 2,000 and 15,000 bulbs add a half-million more candlepower to the downtown street lighting. The city buys the wire, globes and all decorations on a competitive bid basis, and the cost to merchants for such decorations is $1.25 a front foot the first year. Decorations are carefully stored after Christmas and used again the following year,

Knoxville appliance dealers have learned the value of cooperation in the promotion of Christmas merchandising campaigns. Few cities have accomplished as much in the way of downtown decorations and effective lighting and displays.

PROMOTION IDEAS

On these pages are a few items selected at random which tell what other dealers are doing to get their share of December business. Novel displays, advertising stunts, development of prospect lists are discussed.

when the cost to merchants participating the first year is cut to a maximum of 60 cents a foot.

A Junior Chamber of Commerce committee cooperates in getting merchants to sign up for the Christmas lighting plant which transforms the business district into a gigantic Christmas tree during the holiday season. The lighting of streets and buildings gives a Christmas atmosphere which ties-in with the electrical gift displays and adds to their sales appeal.

Profitable Season For Gift Goods Line

THE few weeks before Christmas are always busy weeks for the Moody Electric Shop, of Waycross, Georgia, because of the emphasis placed on lamps, small appliances and other gift items. Although the gift goods department of this electrical contracting firm was started as a small side line, it has grown to reach an annual volume of $7,000 to $8,000 in sales per year.

This unusual and profitable department came into existence through the efforts of Mrs. Moody, who helps her husband by doing the shop office work. Following an illness several years ago, Mrs. Moody was advised by her doctor to keep herself occupied with something that she liked to do. Office work at the shop did not take up her full day and, as comparatively little merchandise was carried in stock and store traffic was negligible, the time of day at the shop frequently hung heavily on her hands.

For two years Mrs. Moody says she merely dabbled around in the gift goods business, making use of a comparatively small investment. As she learned a little more about this merchandise, they increased their stock somewhat and the business continued to grow until today one side of the shop is occupied entirely by gift goods. Their usually attractive displays represent a $1,000 stock of merchandise.

Mr. Moody, who would have preferred to remain in the strictly contracting business, which is a man's game, was even subjected to the indignity of the addition of a stock of cosmetics. But even that's all right with him now for this too is handled very profitably with an average $700 stock on a consignment basis.

The gift goods department has stimulated the sale of small electrical appliances and has been very satisfactory on all counts. Incidentally, the displays seen in the Moody Electric Shop are particularly attractive and would do credit to almost any department store or jewelry shop. The novel booths and fixtures used were designed in the shop. The photos below show a portion of the gift department.

The few weeks before Christmas are especially busy ones for the Moody Electric Shop, of Waycross, Ga. Recognizing the acceptability of lamps and small appliances as gifts, the Moodys extended the line to include a wide range of items.

Careful Planning for Christmas Campaign

REACHING out for more business when an opportunity presents itself has long been recognized as one of the first principles of successful merchandising, and in this respect, the San Antonio Music Company of San Antonio, Texas, has built up a good volume of Christmas business each year by making their plans early, and then following them through to a successful finish. How this has been accomplished is told by Mr. Walter Meyer, sales manager for this firm.

"In planning our campaign for Christmas business," Mr. Meyer explains, "we follow out several practices that have proven successful in other merchandising events. Our office keeps a close check on all installment accounts and, when an account reaches a point where only one or two payments remain, a report is given the salesman notifying him of its status. These reports are given in the form of cards listing the name and address of the customer, what was purchased, and the name of the salesman making the sale. When that salesman is no longer with our organization, the cards are passed on to others in rotation.

"We give this plan special attention during the final quarter when salesmen are instructed to compile lists of such customers, as well as those whose accounts have been paid up, and canvass them for early Christmas business. The housewife may desire a refrigerator, washing machine, or a range, and the salesman shows the husband how the purchase can be made by making the selection now, making a few small payments before Christmas, and then making the sales contract date from the start of the year. Such accounts carry no interest charges until the contract becomes effective.

"Each month, during the period before Christmas, when we send out our monthly statements, we enclose folders that feature minor appliances such as percolators, waffle irons, toasters, food mixers, etc. We follow this up with suggestions in our newspaper advertising—classified, display and Christmas Shoppers' Guide. And, through these activities, we have built up these sales until approximately 75 per cent of our volume in this merchandise will be attained during the month of December.

"We also stress close relationship between the salesman and the people he sells. Salesmen are instructed to telephone such accounts at least once a month, and to make a personal call at least once every three months. This practice has had considerable effect in keeping accounts on our books, on keeping those people to whom we have sold merchandise as regular customers, and in building up more business through their friends and relatives.

"Last year we featured an offer of five dollars for the old washboard to be applied on the purchase of a new washing machine, and got some splendid results. In such sales, the house absorbed the amount offered, the salesmen receiving their full commissions.

"Mention of commissions reminds me of another practice we have put into effect that has gone over well. We try to get as much as possible on the down payment, since it not only helps to close the account earlier, but helps reduce complaints. To do this, we offer our salesmen an additional commission of three per cent on sales where the down payment is ten per cent or more. This extra incentive has brought in some good down payments, and we have all benefitted accordingly.

"It will be readily appreciated, however, that all the plans, the advertising, and the best merchandise in the world would be of little value if we did not have the salesmen, and the cooperation of these salesmen, in putting over the sales. We have regular sales meetings in which we hold open forum on those plans that have proven most successful. Little experiences that have cropped up during the day's work are related, analyzed, and the salesman's method of handling ap-

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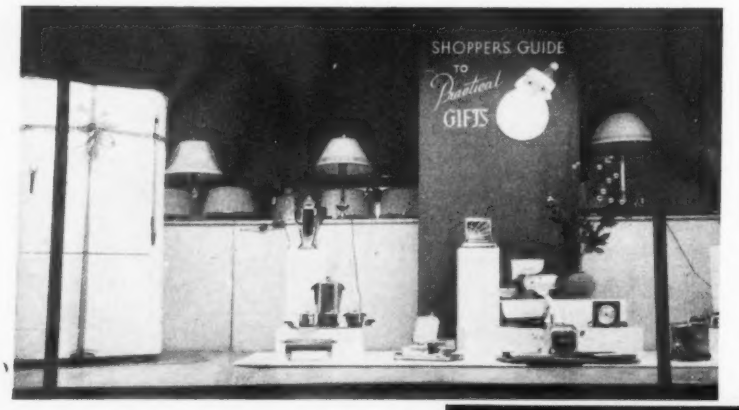
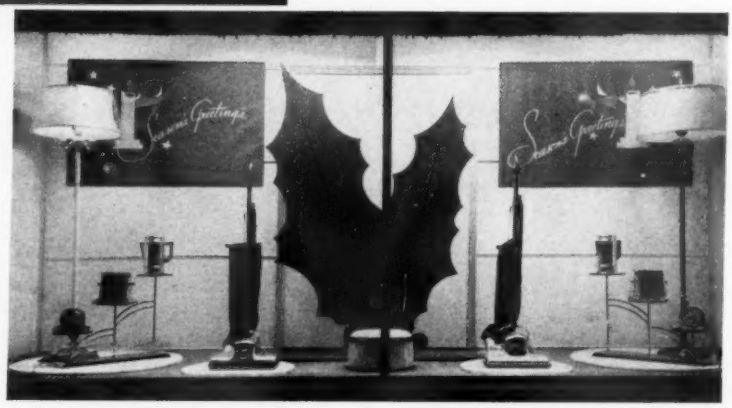




These windows are splendid examples of Christmas displays in which the decorations do not "steal the show." They provide a seasonal background that reminds the shopper of gifts that must be selected but permits full concentration on the suggestions displayed. These windows were used advantageously by the Southwestern Gas & Electric Company, of Shreveport, La., last year.

Thanksgiving Promotion to Bring In Range Prospects

By C. M. Killian
Advertising Manager, Alabama Power Co.

HERE is a sales promotion idea that any dealer can try in a small town, or in a big one, at no large expense to him. You can get the idea from the text for the ad, a layout of which is reproduced here, entitled "We Want a Chance to Give Your Family a Thanksgiving Dinner."

This promotion idea has four advantages: (1) It offers something for nothing without effort and that is always a drawing card. (2) It is timely, that is, it ties in with something that everyone will be thinking about—Thanksgiving Dinner. (3) It will get for you a number of new prospects for various electrical equipment, particularly if you will use a registration card which requires as a qualification that the registrant must indicate the electrical appliance in which he is most interested. (4) You will want to deliver that Thanksgiving Dinner hot, and the best way to deliver it will be in the range, because the electric range oven will keep the meal hot for an hour or two after the current is turned off and this gives you an opportunity to haul that range around the residential section of town with a banner carrying the wording "This range contains the Thanksgiving Dinner cooked electrically and being given to a lucky citizen of Blankville." In other words, it gives you an opportunity to display some showmanship.

THANKS TO YOU!

We are, on this Thanksgiving Day, not unmindful of the many things during the past year for which we can be thankful. We've had our troubles, but they might have been bigger ones. We haven't grown rich, but we've had a comfortable bed in which to sleep, and have eaten three square meals a day.

We're Especially Thankful

—to you who bought electrical appliances from us
—to you who visited our store whether you bought or not
—to you who told your friends and neighbors that they'd make no mistake buying from us
—to you who had a friendly word to say about us or our merchandise.

Announce Contest Early

Your first announcement of this promotion should appear well ahead of Thanksgiving by means of a newspaper advertisement, handbills, and by word of mouth invitation; also, by a show card in your window.

Try to get everybody in your town or in the neighborhood to register—the more registrants, the more prospects you will build up for subsequent sales. You might want to devote all of your November advertising money to this promotion, because it will be a fine build-up for Christmas business.

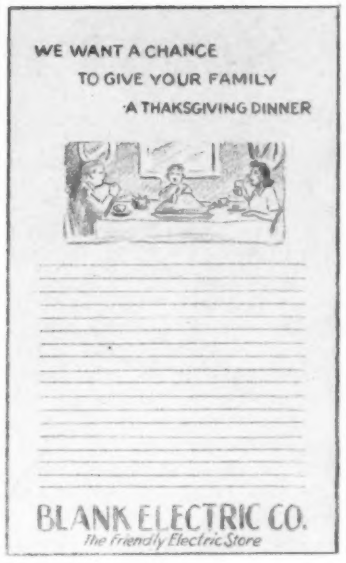
You may also want to run an ad having as its theme something like "Thanksgiving Day for Some Women is the Day After Thanksgiving," emphasizing how modern appliances can lighten the housewife's burdens, and on Thanksgiving Day, a "thank you" in which you are apparently not trying to sell anything, but are taking the occasion to express appreciation to your customers.

You will observe, however, that the very sincerity of the suggested ad headed "Thanks to You" does carry with it the idea that a number of people are doing business with you, that they have been satisfied—so satisfied in fact, that they are telling their friends about it, and of course, that has indirect sales value.

The promotion idea and the suggested November advertisements give you another slant on how you may go about personalizing your store. As stated in a previous article, this advertising need not be of the splurge type to have its effect, but it must be regularly carried on. Hit or miss advertising is money thrown away.

●

Here are typical examples of effective advertisements for the Thanksgiving season which any dealer can prepare. Suggested copy for advertisements is shown below the ad layouts.



WE WANT A CHANCE TO GIVE YOUR FAMILY A THANKSGIVING DINNER

Some lucky family in Blankville is going to have a fine Thanksgiving Dinner without a cent of cost! Your's may be that family. Here's all you have to do—come to our store between now and the day before Thanksgiving, and register. We'll give you a stub with a number on it.

At the close of business the day before Thanksgiving, we will, in the presence of witnesses, have someone blindfolded, who will draw from a hat one of the registration forms, and if the number on it corresponds with the number on your stub, the Thanksgiving Dinner—turkey and all the trimmin's (including dessert)—is yours. It'll be delivered to your home HOT, at whatever time on Thanksgiving Day you say.

And all you'll have to do will be to serve it.

Oh, yes, we forgot to say—the meal will be cooked electrically in one of those dandy electric ranges we sell at such moderate prices and on such easy terms.

Sound Investment in Futures

This utility company is making valuable contacts with its customers of the future: its home service division program includes several activities for young people.

By Nell Read
Home Service Supervisor
San Antonio Public Service Co.

IT is an accepted business axiom that wise investment in futures pays dividends. Futures are immensely important to the continued growth and expansion of business, and certainly the utility industry, in the light of past growth and development, can justly be credited with such wisdom.

Futures in this instance refers to the forward thinking and the wisdom which the utility industry has shown in the development of future markets. Excellent examples are found in the development of the science of seeing as the vehicle for the increased lighting standards which we recognize today. Air conditioning is another deal in futures which is now being realized in the form of general usage and new business for the utility.

American youth today offers an unsurpassed "investment in futures" to the utility companies of the United States because they are the homemakers of tomorrow, who will be buying the companies' services. We are referring to those young men and women in our senior high schools, colleges and universities. Hundreds of thousands of them graduate every year from senior schools and higher institutions of learning all over the United States.

Eventually, these students will marry and establish homes in our various communities. What type equipment will they buy for their homes? If we in the electric utility business have been wise enough to make our story of modern home equipment available to them while they are still in school, we have no cause to worry about the type equipment they will choose for their own homes. They will demand the type we have shown them is desirable.

The San Antonio Public Service Company, in San Antonio, Texas, is promoting work with the young people in their community which they believe is a sound investment in futures. This utility company is convinced that down underneath an exterior gloss of care-free egotism, youth is thinking seriously of its future. They have found that potential homemakers are asking questions about various appliances. These young women are unwilling to accept marriage and its responsibilities if they are doomed to the kitchen slavery that many of their mothers and grandmothers have experienced.

It is the belief of this utility company that they should strive to have an important part in the development of youth's thinking regarding their home and its equipment. They believe that an investment now in training youth to the use of modern leisure-bringing, labor-saving home equipment will result not only in increased appliance sales but additional kilowatt-hour consumption.

The Home Service Division of the San Antonio Public Service Company has reached out to this

A training course for "brides-to-be" is one of the popular activities of the San Antonio Public Service Co. home service division. Instruction is provided for groups of six at a time which permits a maximum of personal instruction. Such a group is shown above. Below, a broadcast of another young people's activity, "The College-Hi Revue."

youth group in several ways:

A "College-Hi Revue" series, consisting of fourteen, one-hour homecraft programs, introduces to the audience of housewives a representative young woman student from a senior high school, college, or university, in the role of a future homemaker, working in a modern kitchen environment. The various schools are always eager to cooperate since the utility company gives newspaper and radio recognition to the activities of each school and its representative. This series of programs has resulted in attracting other students to attend the programs with the final result that enrollment in a series of June cookery clubs has increased to a point where registration must be limited each year in order to accommodate the classes in the two kitchens of the home service division.

The "Cook-Play-Learn Cookery Clubs" for junior high school girls and the "College-Hi Cookery Clubs" for senior high school students bring on keen competition for enrollment each year since the registration is limited to the definite number of students who can be accommodated in the kitchens. In a six-lesson course, they learn by actual use the advantages of modern electric equipment. A cake baking contest with electric appliance prizes to the winners, and graduation exercises, conclude the course each summer.

Through the school year the home service division cooperates with the home economics departments of the high schools, colleges and universities. They include in their curriculum a visit to the company's home service department where a program or series of classes on modern kitchen equipment is presented.

In addition to the students of senior schools and colleges, youth groups such as Girl Scouts and Girl

(*Continued on page* 54)

Here are other typical scenes in the San Antonio Public Service Company's "Spanish Patio," as the home service division is called. At top, a "College-Hi" cookery club graduating class. In the center, a "College-Hi" girl views with pleasure some of the results of her training in homecraft. Below, a typical homemaker audience in the Spanish Patio auditorium.

Too Many Models?

Survey indicates that most consumers as well as dealers believe appliance needs could be satisfied with fewer models.

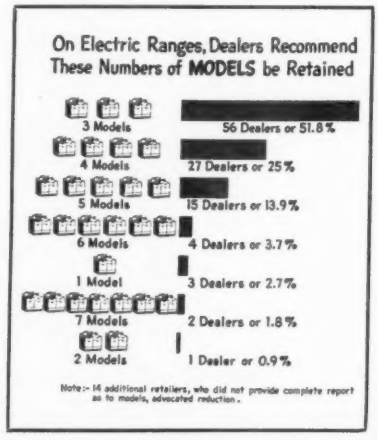
HOMEMAKERS feel that their family needs could adequately be met if the manufacturers of household electric and gas refrigerators, electric ranges and clothes washers offered fewer numbers of sizes and models of these home appliances, according to a study that has just been completed by the McCall Corporation, publishers of *McCall's Magazine, Redbook Magazine* and other periodicals.

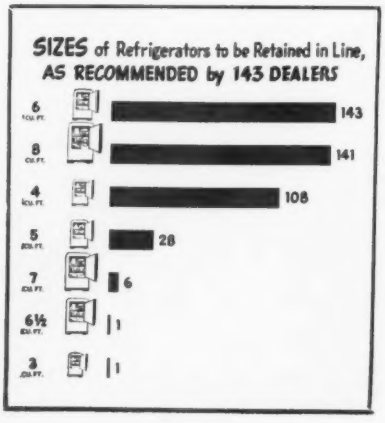
Likewise appliance retailers of all types—electric light and power companies, gas companies, specialty dealers, department stores, furniture dealers, hardware stores and miscellaneous retailers—feel that they could do a satisfactory local selling job, without any adverse effect on appliance sales volume, if manufacturers were to produce fewer sizes and models of these three home appliances.

Both women who now own electric and gas refrigerators and women who are in the market for these devices feel, with very few dissenting votes, that their family needs can be met in four-foot, six-foot or eight-foot boxes. Retailers agree that these same three sizes will meet the demands of mass-market buyers.

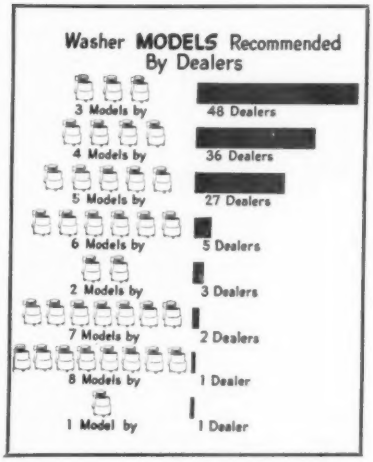
On electric ranges, all the owners and prospects interviewed by the McCall investigators said that the present number of models was so large as to be confusing or baffling. These women believe that their family needs could be satisfied in three electric range models—a low-price range, a medium-priced model and a high-priced model—or by four models. Most homemakers would like to see such differences in the features and conveniences of these three or four electric range models that the reasons for the differences in price would be evident at once or quickly understood.

About the dealers' attitude toward the present number of electric ranges in the typical manufacturer's lines, the retailers, with few exceptions, said that the present number was too large. Slightly over half the dealers recommended three models be retained in a line, a quarter of the dealers suggested four models and just under 15% suggested that the range manufacturer have five models in his line.


On Electric Ranges, Dealers Recommend These Numbers of MODELS be Retained
3 Models
56 Dealers or 51.8%
4 Models
27 Dealers or 25%
5 Models
15 Dealers or 13.9%
6 Models
4 Dealers or 3.7%
1 Model
3 Dealers or 2.7%
7 Models
2 Dealers or 1.8%
2 Models
1 Dealer or 0.9%
Note:- 14 additional retailers, who did not provide complete report as to models, advocated reduction.



One hundred per cent of the women, both owners and prospects, felt that the present number of washer models in a manufacturer's line, with the exception of one brand of automatic washers, was too large. Women felt that their own family needs could be accommodated with three or four washer models. Dealers, too, with but three exceptions, felt that washer manufacturers, for the most part, had too many models in their lines and that the number could be reduced without retail sales volume suffering. The largest number of dealers said that their local sellers' needs could be met with a three-model washer line. Next in number of votes came a four-model washer line, followed by a five-model line. The number of votes for a washer line containing



six or more models was small. Dealers were thinking in terms of basic washer models which could be supplied to Mrs. Homemaker either with or without a pump and with an electric motor or gasoline engine, as the case might be.

On the subject of appliance prices, retailers voted in the largest numbers for electric ranges that would retail at between $90 and $99.99, for models that would retail for $190 to $199.99 and for models priced at between $140 and $149.99. Among the dealers who felt that a manufacturer's electric range line should not be limited to the $100, $150 and $200 ranges, there were a number of recommendations for ranges to sell for $160 to $174.99, for models at $115 to $124.99 and for ranges to sell at between $125 to $139.99.

Retailers selling clothes washers also voted for the retail price of washer models that should be in the manufacturers' lines. The most votes went to a model to sell for $60 to $69.99. This was followed by the next largest number of votes for a model to retail at between $50 and $59.99. In third place came a washer model to sell for between $70 and $79.99. The smallest number of votes from dealers went to washer models for under $40.

(*Continued on page* 50)

Sales Data at Your Finger Tips

Blackboard records give this dealer up-to-the-day information on sales for the company as well as individual salesmen.

WITH the owners of Oak Appliance Company, New Orleans, and Ackerman—there is never any guessing as to how sales are running as a whole, or as to standing of any salesman. Four large blackboards in the office, which require but little time in posting, "tell the story" completely and at a glance.

Quotas are set in advance for the year, then broken down by months, on sales of both domestic and commercial appliances. These records are shown on a board headed, "Individual Salesmen Quota on Each Appliance Volume."

Months are shown across top of board, below each being two vertical columns, one for quota and the other for actual amount sold. The top horizontal column across board is for total commercial sales, quota and actual sales, divided by months. The next space below is for total commercial sales for year to date, quota and per cent of quota sold.

The third column across board is for domestic sales, quota and actual, by months; with the column next below giving the cumulative quota for year, quota and actual sales. The fifth and sixth columns are the combined totals of commercial and domestic quotas and actual sales, by months and for the year to date.

The bottom two columns are for similar records of domestic sales, by individual salesmen, showing the quota average for the group, each man's actual sales and the percentage of quota.

Another blackboard shows daily sales for the current month, with totals of the preceding month at extreme right. Each salesman's record is shown, domestic at top, and commercial below. Amount of sales for each salesman is inserted for each day.

On this board are also shown sales of the various appliances, with dollar volume by days, and number of units shown in a small circle adjacent to the other figure. Totals for preceding month are shown at extreme right, and at bottom are shown the totals for the day.

A third blackboard records the sales of the commercial men. It is kept by months, with the quota for each month shown, then the actual sales for the month are inserted later. At the extreme right is each man's total quota for the year; at bottom are quotas for all men for the month, then beneath are inserted the actual sales for the month after its close.

The fourth blackboard shows the standing of salesmen in the current contest. Contests are frequently used over two-month periods.

Here is the plan of a typical two-month contest used recently. An amount of $160 was set up to be paid if the contest quota was reached, to be divided as follows: highest man, $50; second high man, $30; third high man, $20; each of the next six, $10.

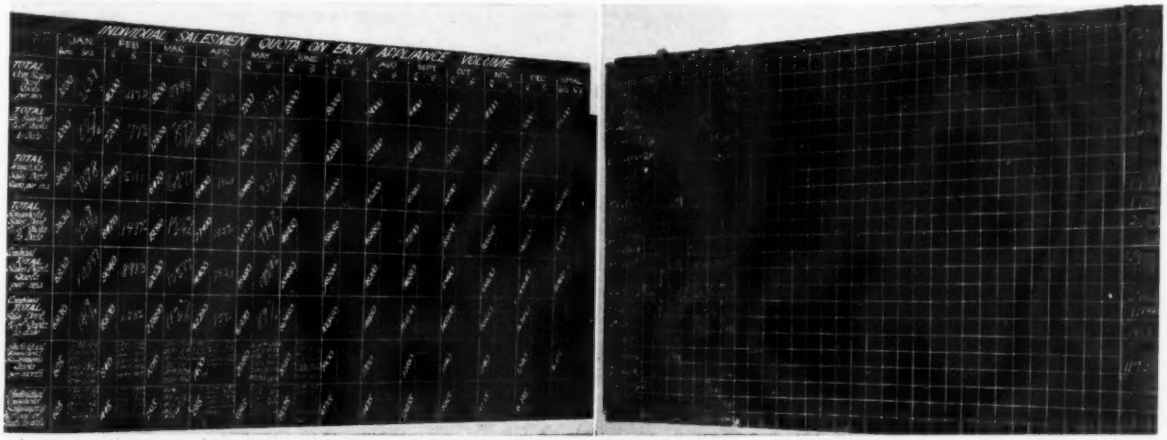
As a special inducement for the men to work hard during the contest, additional bonuses were set up as follows for business secured in excess of the quota:

Sales Over Quota			Total
1st $1000,	6½% -	$ 65 -	$ 65
2nd 1000,	7½% -	75 -	140
3rd 1000,	8½% -	85 -	225
4th 1000,	9½% -	95 -	320
5th 1000,	10½% -	105 -	425
6th 1000,	11½% -	115 -	540
7th 1000,	12½% -	125 -	665
8th 1000,	13½% -	135 -	800
9th 1000,	14½% -	145 -	945
10th 1000,	15½% -	155 -	1100

In addition, there was the $160 for attaining quota, making a total of $1260 to be distributed among the salesmen should sales exceed the quota by $10,000.

If a trade is involved, either domestic or commercial, and necessitates an absorption by the company which brings about a variation in price, the company appraises the trade-in and considers its cash value as money. All orders figuring in the contest had to be completed

(*Continued on page* 49)



Two of the four blackboard records maintained by Oak Appliance Co., of New Orleans, to show sales results. At left, a monthly record of quota and sales for both individual salesmen and departments. At right, a daily record showing not only the daily sales of each salesman but also daily totals for various types of appliances handled.

Apprentice Training in Alabama Meets Industry's Needs

By W. K. Askew

Assistant Director
Alabama School of Trades
Gadsden, Alabama

"SEND us a normal boy and, after a regular two-year course in our shops and classrooms, we will return to you a young man thoroughly capable of taking his place in his selected trade on an advanced apprentice level," is the challenge to industry and the South issued by the Alabama School of Trades.

To justify this statement, the school offers an enviable record in respect to permanent employment and success of its graduates. Over a period of years 98 per cent of the graduates have found gainful employment; and within thirty days after graduation more than 90 per cent of the students find employment in their respective trades. Eight weeks before graduation date this year more than 40 per cent of those receiving diplomas were already placed in industry and gainfully employed.

The Alabama School of Trades is a state educational institution for the education and training of white boys and young men in the useful industrial occupations and in the related technical and occupational knowledge required by the trades. The following courses are offered: Mechanical and Architectural Drawing, Printing, Sheet Metal Work, Electric and Oxy-Acetylene Welding, Applied Electricity, Woodworking, Auto Mechanics and Radio and Refrigeration.

The school, located in Gadsden, Alabama, is supported by state funds and is under the control and direction of the State Department of Education. The aim and purpose of the school is to offer training in the theory and practice of the various mechanical trades on the level of advanced apprentices rather than journeymen.

The facilities of the Alabama School of Trades have been almost doubled within the past few years. There are now three large dormitories with a central dining room and kitchen. A new administration building houses administration offices, library, auditorium, classrooms, drawing room, supply room, and the print shop. There are four factory-design shop buildings in which are located the sheet metal work, welding, woodworking, auto mechanics, electrical, and radio and refrigeration departments. The buildings are modern and were planned especially for the type of work that is carried on in them. Each shop is planned and equipped for thirty students. The equipment and tools are modern and similar to the types of tools and equipment found in industry.

All applicants for admission to the school must be physically and mentally able to carry and follow the trade selected. They must furnish recommendations from three reliable citizens as to character and dependability. If the work of a student shows his inability to master a course, the school reserves the right to make such changes as are necessary.

There are many unique features connected with the Alabama School of Trades: it is the only state-owned trade school in the immediate South; of an enrollment of 226, there are 12 day students, 5 out-of-state students, and the remainder come from all parts of the state.

The school operates a large farm, cultivating more than 100 acres of land; has a dairy, poultry farm, truck farm, orchard, and raises hogs and beef cattle. The farm's average monthly output to the kitchen and dining room is 422 pounds of chickens, 600 pounds of milk, 450 dozen eggs, 1500 pounds of pork, 300 pounds of beef. Last season the canning department canned 1076 gallons of beans, 474 gallons of kraut, 510 gallons of tomatoes, 212 gallons of peaches. The labor about the farm, buildings and shops is done by students with supervision by especially employed directors.

The course in applied electricity is one of the most popular courses in the school. There is a continuous waiting list of applicants. As soon as seniors go out on their jobs, new students are enrolled.

The most encouraging outlook in the electrical trade at the present time, in regard to the training of

Airplane view of portion of school grounds.

workers, is an awakening on the part of electrical contractors and their organizations, national, state and local, to the fact that the problem of apprenticeship is one of paramount importance. The Alabama School of Trades has been in the field of training since 1925 and, at the same time, has been a sideline observer to industry, watching the reaction and effect of apprentice training in the electrical trade, and the certain approach of somewhat of a dilemma.

Contractors have been crying out that a labor shortage is becoming imminent in the electrical trade. This call for training created a challenge to the school, the instructors, and the students. To meet this challenge the electrical course was carefully and expertly organized around an outline of specific training needs.

Related instruction was included that would fully round out the student and give him sufficient technical knowledge and information for an understanding of the principles of electricity and of the many modern applications. Indirect related subjects, such as English, shop mathematics, economics, hygiene, and shop foremanship were put into the courses to fit the student for a full civic life and give him an appreciation of the value and need of a broad general education. It is hoped that the student will have created in himself a desire to extend his studies after graduation.

The electrical course in the Alabama School of Trades is organized on a basis of eighty weeks of combined study and shop work, divided into two terms of 40 weeks each. Students have related subjects for one-half of the day and shop work the other half. The shop instructors of all courses are men who have been outstanding in their respective trades and also have the rare ability of teaching and giving instructions from the simpler problems to the skillful and mechanical operations necessary in their trades. General related material instructors are college graduates who have specialized in that field and are appreciative of the demands of industry.

Training in the electrical course consists of completing a required number of units, advancing in order of importance, as shown below. The apprentice is allowed to advance from one unit to another only upon satisfactory completion of the former unit, thereby enabling him to advance as rapidly as his ability will permit.

Unit One

Shop work. Splicing and joining conductors, soldering and taping joints, battery connections, wiring for door bells, door openers, annunciators, open and closed circuit burglar and fire alarms.

Related work. The following related topics will be covered during this unit: magnets and magnetism; electro-magnetism and application of electro-magnetism; Ohm's law; series and parallel circuits; wire sizes; wire gauges; reading drawings and specifications; study of catalogues and underwriter's rules; study of equipment and material used.

Drawing. Instrument exercises, theory of projection, lettering, simple wiring diagrams, symbols.

Unit Two

Shop work. Inside wiring for lights, heat cooking, refrigeration, and air conditioning; exposed surface wiring and concealed wiring, with cleats, knobs, moulding, wire-mold, rigid and flexible conduits; fixture wiring and installation.

Related work. The following related topics will be covered during this unit: unit of measurement, work and energy, simple properties of electric circuit, potential differences, electromotive force, heating effect, general form of Ohm's law, Joules' law, conductance, resistance, conductors, non-conductors, insulators, English and metric equivalents, density of common substances, specific grav-

(*Continued on page* 48)

A well-balanced program of study and work enables a large percentage of the graduates of the electrical course to take their place in the trade at an advanced apprentice level. The course includes class room work on electrical theory as well as related subjects. Considerable emphasis is placed on drawing and practical shopwork such as shown here.

Accessory Sales Help Motor Shop Volume

By J. E. Launder*
President, Independent Electric Machinery Co., Kansas City, Missouri

MOST of us want to increase our business in one way or another, some to cover larger territory and become more broadly known; others to handle more goods and employ more men; still others to handle more dollars and cents; but it all can be termed "more volume" and the final result is to "make money."

You probably will agree that to make money in business today, the same as ever, is to be quick of perception, efficient as an operator, fair in your dealings, and alert to every possibility of turning a profitable sale. While there are other attributes to successful business, let's, for the present, deal with some of the above and see whether we are all getting the most out of our daily efforts.

Have you perceived the great number of accessories and devices that are coming on the market every day, which are directly related to our section of the electrical industry, which require only slight additional effort on the part of any of us to sell, and which will contribute to additional volume and profit? To name a few:

Some Profitable Items

(1) "V" rope drives known by many trade names such as "Texrope Drives," "Varia Drives," "Vulco Drives," etc. These are becoming more popular every day, and most users will welcome suggestions as to applications. They are waiting for some one to come around, who can make an intelligent application of this principal to their power transmission problems. Of course, to successfully make sales of such equipment, it is necessary to study the engineering tables, read about applications made by others, know the products and what they will do, get the prices and discounts well in mind; then present to your prospect a clear proposition in language that he can understand and show by comparison, if possible, what savings he can expect. This done, sales are bound to result and you will be surprised at how the volume runs up.

Just as an illustration, agents for this type of drive in some of the Mid-western cities of 300,000 are handling a volume of as much as $1500 per month and in some larger cities I am informed the amount is much higher. Take an average profit on this of 15% and you have $225 per month which will go a long way toward paying rent and other overhead.

(2) Control apparatus: every time a motor has to be repaired there must be a reason for its having broken down. Look for the reason as soon as you are called on the job and, in many cases, you will find faulty starting or control equipment. Get out your catalogues and find what is proper for the job. Show the customer where the trouble occurred and quote on the proper protective apparatus to minimize re-occurrance of such a failure. Every time you sell a motor, a starter or controller should be sold with it. The prospect may say he has a "switch" but press him further and inquire diplomatically whether it is one of the new type such as is made by so and so, naming the company whose equipment you sell. You will generally find that he does not have what is proper and that you can sell him something. He may say, "The contractor will put that in," which means *no business* for you unless you happen to be his contractor. Your move is to convince him that the starter is an extra anyhow and that you deal in them regularly and are in good position to recommend the proper article. Then do it, and you will probably make the sale. This runs into more volume.

(3) Voltage regulators: you all are called into plants from time to time where the owner is making his own current with either gas or oil engines. In most such places, the voltage runs all over the meter and is annoying to the operator. There are a number of low priced voltage regulators which will correct this, but the poor voltage sufferer generally has in mind an expensive instrument so he has not given consideration to buying anything to correct his trouble. He needs you to come along and tell him what is on the market, what it will do for him, and what it costs. It is not difficult to learn about these regulators and how to install them. If you will do this, a profit of from 15% to 25% can be realized from such effort and the *volume again raised.* One servservice shop, to my knowledge, sold 16 regulators in 8 months and increased its volume by about $2,000 through such sales.

Don't Overlook Lamps

(4) Lamps: here is something usually overlooked just because it seems a small item. Every place where you service a motor is a prospect for lamps and practically any of them can sign a $150, or less, lamp contract thus obtaining a discount of 15% in broken packages and 20% in standard packages, enabling you to add to your own quantity discount. Further, you keep in constant touch with the customer by having him call in his orders for lamps to be applied on the contract and he keeps you in mind for his electrical requirements.

The lamp companies are only too glad to give you a consigned stock which saves investment. The records to keep are very simple and a profit is assured. The amount is based entirely on your effort and ability to keep at it and build up the quantity.

One contracting firm, with which I am acquainted, secured a $14,000 rewiring job for a large factory by following up the lamp contract after they had been called in to locate trouble on fuses that were continually blowing. They made tests which showed overloaded lines, a large voltage drop, poor light and consequent low efficiency by the workers. A proposition was prepared, presented to the management, and after due consideration, an order resulted.

These and many more items can

(*Continued on page* 47)

*Adapted from an address presented before the Seventh Annual Convention of the National Industrial Service Association, in Detroit, April 22-24, 1940.

Arc Welding Used Extensively On Building Construction

THE NEW $3,000,000 Le Tourneau factory project rapidly nearing completion at Toccoa, Georgia, has been designed, planned, built and equipped for manufacturing by the electric arc process of welding. It embodies principals developed and perfected by R. G. Le Tourneau in more than 20 years experience in the use of arc welding not only in his own manufacturing operations but also in the erection of buildings and housing facilities.

The factory proper is 370 ft. long x 370 ft. wide and 23 ft. high. Other buildings in the project include: an office building 160 ft. long x 115 ft. wide x 11½ ft. high, a hotel consisting of a center dome structure 100 ft. in diameter and 7 wings extending outward in fan shape, each 32 ft. wide x 125 ft. long; 40 employees residences; and a warehouse 92 ft. x 92 ft.

All of these buildings are erected entirely by arc welding. When completed the project will also include: a cattle barn 115 ft. long x 46 ft. wide; a milk cow barn accommodating 50 cattle; a pasteurizing building; a canning building; several silos; employees recreation hall; a 200 ft. tabernacle; a 250 watt radio station; cafeteria; stores; additional houses (60 planned); and other structures.

The arc welded develpment which permitted the unique construction employed in all buildings and which was created by Le Tourneau, is a fabricated steel panel forming the main structural element utilized in walls and roofs of all structures.

This arc welded steel panel is 46″ wide x 92″ long fabricated of 12 gauge open-hearth structural steel sheets. These sheets are stamped under 600 tons pressure into a sunken panel design, the edges being turned down 1 inch all around during the stamping operation. Two of these sheets, with the turned edges toward each other, are welded together with interior spacers set at intervals of not more than 24 inches to form a box-like unit. Maximum strength and rigidity are provided by pressed steel braces welded into a lattice web pattern all around the edges. Under test, one of these units withstands a weight of 100 lbs. per square foot without any deformation. Approximately 8 minutes is required to set up, weld and remove from the jig one panel.

In field erection, the two turned edges of each panel provide a surface for welding it to an adjoining panel to form walls, partitions, floors or ceilings. Into each sec-

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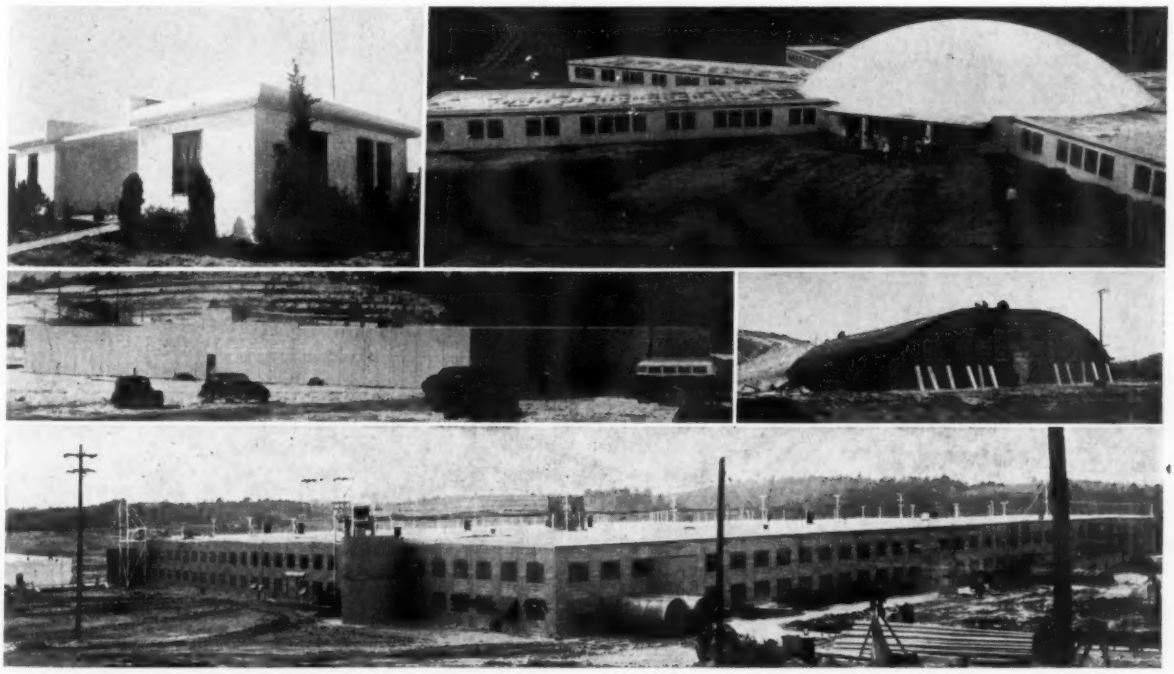
(Photos courtesy Lincoln Electric Co., Cleveland)



The $3,000,000 Le Tourneau factory project in Toccoa, Ga., is one of the largest applications of electric arc welding to construction in the South, if not in the country. Using fabricated sheet steel units, the Le Tourneau company has already completed construction of a number of buildings and is planning other local projects. All of the buildings illustrated here are of arc welded construction. Upper left, one of 40 workmen's residences; upper right, Toccoa resort hotel with dome 100 feet wide and seven wings; center left, exterior view of the Le Tourneau office building during early stages of construction; center right, warehouse; and at bottom, view of Le Tourneau factory building.

How Well Do You Know These Electrical Trademarks

Check your knowledge of these trademarks, tradenames and insignia that have appeared in advertisements in this and previous issues of this publication. Answers on page 47.

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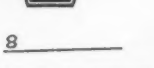

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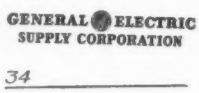

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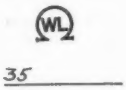

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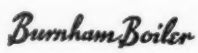

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Attendance at the National Electrical Contractors' Association's 38th annual convention in Jacksonville very nearly exceeded all past records. Registration was nearly 500; 600 attended the banquet.

Progress of 1940 Activities Discussed by Contractors

REPORTS presented at the 38th annual convention of the National Electrical Contractors' Association, in Jacksonville, October 21-23, indicated that substantial progress has been made during the past year on what is perhaps the most ambitious program of activities ever adopted by the association. The meeting program had been planned so as to provide some discussion time for each of the projects in which the association is particularly interested at this time: salesmanship; labor relations; codes and standards; estimating and cost data; legislation and industry statistics.

Nearly 500 members and guests were registered and more than 600 persons attended the annual banquet. High points at the banquet Wednesday evening were the presentation of the McGraw Contractors Award to A. Lincoln Bush, president, Belmont Electric Co., New York, and the announcement that the 39th annual meeting would be held in Houston, Texas, in 1934.

New Committeemen Elected

Only officers coming up for election at this meeting were executive committeemen for Divisions Nos. 1, 4, 7 and 10. All members at present serving in these positions were re-elected. They were: H. A. Pierce, Pawtucket, R. I., for Division No. 1 which includes the New England States; E. C. Carlson, Youngstown, Ohio, for Division No. 4 which includes Ohio, West Virginia, and Kentucky; H. C. Evans, Kansas City, Mo., for Division No. 7, including eight midwestern states; and S. G. Hepler, Seattle, Wash., for Division No. 10, covering the northwestern states.

Business Program

The business sessions were opened promptly on Monday morning with an invocation by Rev. A. J. Kissling, followed by the introduction of the Jacksonville Convention Committee chairmen.

Delegates were welcomed to Jacksonville by Ernest E. Anders, chairman of the city commission and commissioner of municipal utilities, who described the successful operation of Jacksonville's utilities and lauded the city's climate and environment.

Heard also at this session were reports from the president, R. W. McChesney, of Washington, D. C., and the secretary-treasurer of the association, Laurence W. Davis, of New York. Mr. Chesney described the association's program and outlined the services available to members of the industry. The secretary's report indicated a satisfactory financial condition and a general improvement in membership. "Building Salesmanship in Electrical Contracting" was the subject of a paper presented at this session by D. B. Clayton, of Birmingham, and chairman of NECA's Sales Development Committee. Warren Penn, of Burbank, Calif., described the "Gold Seal Building Industries Plan of Guaranteed Wiring."

The Monday afternoon session was devoted principally to the subjects of labor relations and apprentice training. E. C. Carlson, of Youngstown, Ohio, presented a report of the Labor Relations Committee of which he is chairman. Other speakers heard at this session were D. W. Tracy, assistant secretary of labor, Washington, D. C., and J. Walter Collins, of Chicago, chairman of the NECA Committee on Apprentice Training.

Other Speakers

Excerpts of several of the addresses will be found on following pages. Other speakers who addressed the convention and their subjects were as follows: Homer G. Knoderer, General Electric Co., Bridgeport, "A Tool for Calculating Conduit and Wire Sizes"; Joseph Whitner, assistant chief engineer, Southeastern Underwriters Assn., Atlanta, "Banch Circuits and Feeders Under the 1940 Code"; George W. Patterson, Toronto, Ont., "Taking the Gamble Out of Estimating"; J. Norman Pierce, Chicago, Ill., "The American Way to House Americans"; Col. O. R. McGuire, general counsel for NECA, Washington, D. C., "The Electrical Contractor and the Federal Government—Why a National Electrical Contractors' Association?"; and A. Lincoln Bush, New York, "Better Knowledge of Our Industry."

MEETING THE NEED FOR INCREASED ADEQUACY

By George Andrae

Chairman, NECA Codes and Standards Committee, Milwaukee, Wis.

Adapted from an address presented at the 38th Annual Convention of National Electrical Contractors' Association at Jacksonville, Florida, October 21-23, 1940.

THE following list of objectives give in concise form a statement of NECA policy pertaining to electrical codes and standards:

1. To participate in the formulation of electrical codes and standards;
2. To foster and promote an active study of the electrical code by our membership;
3. To cooperate with electrical inspection authorities in securing compliance with code standards;
4. To protect the interests of the public which depends upon us for advice and service, by recommending and installing adequate wiring, realizing that the code is but a minimum standard;
5. To cooperate with electrical manufacturers and other interested industry groups to eliminate needless duplication of fittings and devices, and to standardize on a minimum of essential products in order to reduce costs to the ultimate consumer;
6. To lower building costs on electrical work by
   (a) Standardizing on galvanized conduit and eliminating black enameled conduit;
   (b) Standardizing on galvanized outlet boxes and eliminating black enameled boxes;
   (c) Permitting use of wire sizes 1/0 to 500,000 cm in multiple on services and feeders, and eliminating sizes over 500,000 cm for 600 volt building wire;
   (d) Eliminating 50° Type R and 60° Types RP and RPT wire; standardizing on 75° C Type RH as the basic Code grade of wire; standardizing on RHT in sizes up to No. 1, and RH from 1/0 to 500,000 cm; standardizing on 60° Types SN and RU, and 75° Type RHT for rewiring work;
   (e) Standardizing service entrance and metering switches;
   (f) Eliminating many needless wiring methods, and standardizing on a few which over a period of years have demonstrated their safety and practicability.

Influencing Factors

One good reason to hope for the ultimate, and probably early realization of some of these objectives, at least in part, is that not one of them involves a controversial issue with other industry groups. On the contrary, certain groups would welcome not only our participation but our leadership in gaining some of these objectives, because we are in a peculiarly free position to act, without legal or technical questions arising. We can buy what we want and from whom we want. We can stop buying black conduit and black outlet boxes tomorrow and standardize on white conduit and white boxes, and the conduit and box manufacturers may want to shout approval. But they themselves will not get together and decide to stop making black conduit and black outlet boxes tomorrow, because of possible legal implications of collusion, even though the prime objective of such standardization and simplification is to reduce the wiring cost to the ultimate consumer, John Q. Public.

Another major item we can influence by our purchases is that of wire. Since the addition of the new types of wire to the already existing ones, we have a needless array that could easily be simplified. My proposal is to standardize on 75° Type RH heat resistant wire as the basic code grade of wire, and eliminate entirely the present 50° code grade and the 60° RP-30% wire as unnecessary and too expensive. Too expensive, because in amperes delivered at the other end of the line, with the same conduit, the same size of copper, the same cost of installation, we can get more for the customer's dollar with 75° RH or RHT wire, and probably also allow for voltage drop, which the code tables never did allow for. I know that the wire manufacturers would welcome such simplification and I hope that much can be done before the next code appears three years hence. Your purchases of certain wires, and your failure to purchase other wires, should be of assistance to the wire manufacturers in determining the trend.

Concluding one of the most successful conventions in their association's history these officers of N.E.C.A. had reason to smile. Left, Laurence W. Davis, secretary-treasurer, New York, and R. W. McChesney, president, Washington, D. C.

Adequate Wiring

During the past twenty years much has been done to promote adequate wiring. Many organizations and many groups both locally and nationally have advocated adequate wiring through the medium of Red Seal plans and other educational campaigns. This has been necessary in part because of the needs of a rapidly expanding industry, and also because the National Electrical Code is only a minimum standard and cannot set and demand compliance with maximum standards based upon adequacy.

In this respect, however, there has been an important change in code making. Certain rules now appear in the 1940 Code which are based largely upon adequacy, rather than solely upon the fire hazard element; for example, the rule requiring that receptacles in kitchen, dining room, breakfast nook, pantry, and laundry be on a circuit separate from lighting outlets and be wired with No. 12 wire as a minimum. Also another rule requiring receptacles in certain rooms, with at least one receptacle every twenty feet around the room. We have now added two rules demanding adequacy in items the practical electrician will appreciate; namely, adequate space for wires and splices in outlet boxes, junction boxes, and pull boxes. The outlet box rule has been clarified and restricted to make it mean something,

and for the first time we have a rule about minimum sizes of pull boxes and junction boxes.

These rules are not cure-alls; they are however a big improvement over what we had, and can be changed later as practice in the field indicates changes are needed. Adequacy should also be fostered by the increasing use of branch-circuit circuit breakers, which prevent overloading of circuits. Their use should cause better planning of circuit loads on new jobs, and rewiring or splitting of circuits on old jobs. The same could be said of non-tamperable fuses when, as, and if the several manufacturers or patent holders can pool their interests on an interchangeable design that is actually non-tamperable.

All of these rules and changes are overshadowed in importance, from the standpoint of adequacy, by the addition of several new types of wire in the 1940 code. Circuit and feeder loads can now be taken care of that were hitherto unheard of. Instead of letting a comparatively new building remain electrically obsolete and unrentable for certain classes of tenants, that building can now be rewired with thin insulation wires and circuits run to feed modern high wattage fixtures.

Strange to say, however, in some places opposition has arisen to the use of these new business building and man-hours of labor-producing thin insulation wires on the part of both contractors and labor business agents. I think this is a mistake, based upon a mistaken viewpoint, and due to a misunderstanding of the type of job these wires were developed for. Let me repeat and emphasize, that thin insulation wires are *not* intended for or approved for rewiring work in general. If you have exposed conduits that can be replaced with larger ones, thin insulation wires such as RHT, SN or RU are not intended for such a use. If, however, you have conduits inaccessibly concealed or imbedded in concrete floor slabs, tile or masonry, then because the conduit area cannot be made bigger, the wire diameters are made smaller. In other words, these wires are an answer to a problem that hitherto had no solution—except at terrific expense—and now will make impossible jobs possible, and bring business to the contractor and additional work to his electricians. That is the way I see it; I think most of you will see it the same way; and I hope the unfortunate opposition to thin insulation wires in some cities will soon cease.

These two delegates might qualify for the longest and shortest traveler to reach the convention. A. L. Stone, Stone Electric Supply Co., San Francisco, came across the country, while W. O. Henderson, right, Henderson Electric Co., Jacksonville, came from "around the corner."

BUILDING SALESMANSHIP

By D. B. Clayton

Chairman, NECA Sales Development Committee, Birmingham, Ala.

Adapted from an address presented at the 38th Annual Convention of National Electrical Contractors' Association at Jacksonville, Florida, October 21-23, 1940.

MUCH has been, and is being, said about the future of the electrical contractor in our industry. Much more will be said, because the real economically sound method of electrical construction is by contract with competent companies. Because of the fact that installation work has to be done; that most users recognize the necessity of competence; that they prefer contracts; and that a contract necessitates a contrator, the discussions regarding their future are bound to remain with the electrical industry.

There has been tremendous looseness in the use of the term electrical contractor in the past, due to the fact that one who contracts is a contractor, and one who contracts electrical work is an electrical contractor, regardless of ability or responsibility. Those of us who take pride in our part played in this great industry have for years carried the torch for electrical contractors as a whole, demanding recognition that is deserved by many able and ambitious construction engineering companies or service companies if you please, but failing to properly differentiate between those who can really serve and those who fail utterly to serve, all of whom are known to the public, and all too often to other branches of our industry, under the general heading of contractors.

"Qualified" Contractors

The time has come for us to qualify those contractors who are able to serve now or who are desirous of fitting themselves for this very technical business. Electricity has become a universal servant during recent years. Many of its uses are so common that the average person fails to recognize that there are very definite laws governing its actions, and that these laws have to be known and followed if maximum use is to be made of the kilowatts purchased.

I know many so-called contractors—recognized as such by the public and even by members of the industry—who do not know whether Ohm's law was found written on a stone slab in Egypt, or whether it is the attempt of Congressman Corn Tassel to compensate the consumer for current lost in the wiring that neighbor Brown's very talented young son hung up for half the price that a competent contractor wanted for a properly designed installation.

These men are not what we have in mind when we speak of the contracting industry, but unfortunately they are what the industry has, in large majority, if we consider it as numbering anything like the twenty-five or thirty thousand that many people claim for it.

Sales development is absolutely necessary for any business in times of over-capacity in industry and certainly no business needs it more than electrical construction; but let

O. L. Bunn and E. M. Brignac, both of Industrial Elec., Inc., New Orleans; W. W. Ingalls, Ingalls Electric Co., Miami; R. W. Keiser, Cold Cathode Illumination Co., Atlanta; and J. H. Bridges, National Transformer Corporation, also of Atlanta.

us understand what we aim to do, so that no one will be disappointed when our efforts in this direction fail to make competent engineers and salesmen out of that tremendous group of contractors, who are entitled to the name solely because they at times "contract."

There should not be a dissenting voice in the clamor for salesmanship in our business. We need it desperately to build up our work to a profitable basis. Manufacturers, jobbers, and utilities want us to have it, for their appliances, apparatus, and construction materials are useless and profitless if not properly installed. The consumer public can only be properly serviced when we are sufficiently good as salesmen to pursuade it to pay us a fair price for a properly designed and installed system, no matter how large or how small it may be. Everybody concerned, therefore, needing it, we may be sure that it will be supplied, for very seldom are such universal needs left unsatisfied in this country. If we do not take care of the job, others will and will reap the harvest that now is ours for the taking.

The Sales Manual

You now have the first three issues of the first section of the new NECA Manual of Sales Development. It is going to be no easy task to accomplish what our ambition leads us to hope for, for we realize the handicaps facing those who try to make salesmen of mechanically minded men or engineers, and that is what we are faced with in the larger part of our construction industry.

Where we find engineers and salesmen both in one concern, we have ideal conditions, but unfortunately these combinations too rarely exist, and our main task is to train the rank and file of our members who are usually weak even in potential sales ability. Salesmanship and engineering ability are too much like oil and water. They seldom mix in the human makeup without being thoroughly shaken up.

We propose dividing the Sales Manual into three main divisions: *How to Sell*: *Where to Sell*: *What to Sell;* feeling the importance of each of these to the construction firm.

How to Sell

Under HOW TO SELL, we have sections on (1) Sales Psychology, (2) Advertising, and (3) Sales Engineering. There are many good books, naturally, on the psychology of selling, for that has been stressed in practically every industry in the country except ours; but we are preparing a section based on essentials only, as our manual could not devote the space used by many of these references. Ours is being written as much as possible in the language that the average contractor, can easily understand.

Under advertising we hope to offer advice and suggestions, which will keep up the proper contacts with customers.

Sales engineering will cover principally fact finding, such as surveys of owners property, making of various tests, and discussion of testing equipment.

Where and What to Sell

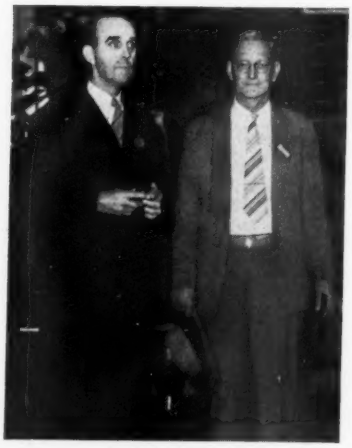
Just to make it hard on ourselves, we are attempting to really tell you "Where to Sell," *though of course the real easy answer to that is everywhere.* It appears, however, that in trying to point out available markets, we will be able to mention many that are not now coming in for the proper amount of attention.

Often the installation of capacitors will improve power factor to such an extent that they pay for themselves in from three to five years.

Many new types of lighting are appearing on the market, providing the tools for you to better serve lighting customers in stores and other large buildings.

Small diameter wires open a tremendous market that has been hard to release, due to expense involved in cutting floors and walls to install new conduits for additional circuits.

These are samples of some of the items that will be discussed under What to Sell and the discussions will give the characteristics and applications of these products as well as various types of controls, ventilation and air conditioning equipment, together with many other items that we know exist, but which we never stop to secure necessary data on from which to prepare sales arguments.



K. D. White, White Electrical Construction Co., Atlanta, and Walter A. Stall, chief electrical inspector, Jacksonville.

We propose to make up the section on What to Sell in such a manner that all information will be available on each product in a clear, concise form, less the usual advertising dress up that it has in the trade papers or advertising bulletins. It will be technical data put in an easily understandable form, prepared by experts, but based on the application of the apparatus and not on the selling points of any particular manufacturer.

STANDARDIZATION AND SIMPLIFICATION

By Dr. M. G. Lloyd

Chief, Section of Safety Codes,
Bureau of Standards, Washington

Adapted from an address presented at the 38th Annual Convention of National Electrical Contractors' Association at Jacksonville, Florida, October 21-23, 1940.

THE electrical industry is one which has already applied a considerable degree of standardization. Many outstanding items are so familiar to us that they are taken as a matter of course. Voltages have been very largely standardized, so that a uniform product of manufactured appliances can be used almost everywhere in the United States. The electric wiring of buildings is now largely guided by the rules of the National Electrical Code, which are widely applied in this country.

While the electrical industry has accomplished much in the field of standardization, it has made little progress in the field of simplification. The items in jobbers' catalogues which deal very largely with electrical wiring supplies run well up in tens of thousands. With the new types of wire insulation which have been recognized in the 1940 edition of the National Electrical Code, this volume of items will be considerably increased. Some of these new types of wires represent materials which have been thoroughly needed and meet a real want in the industry. Others represent an improvement in materials and are consequently steps in real progress, because improved qualities of insulation mean higher permissible operating temperatures and lesser thicknesses of insulating material, thus occupying less space in conductor enclosures, all of which leads to economy in an installation of any prescribed capacity.

Mr. Andrae has raised the question whether with these improved products available it will not be feasible to drop some of the older types of conductor insulation. This is a proposal of much promise and should have the very serious consideration of the industry. The problem can be attacked, as many other simplification problems are attacked, as soon as the new products have come into widespread use.

The types or methods of wiring recognized in the National Electrical Code have shown a tendency to increase over the years. The 1940 edition of the code represents a further increase in this field. Sixteen different methods of wiring are now recognized, and possibly some of these have survived their real usefulness. There are certainly some of them that are not in very wide use, but whether they can be entirely dispensed with requires a more extensive investigation than has yet been given to the subject.

In each individual method of wiring, however, we find an enormous choice of accessories and fittings which challenges the serious attention of the industry. It would seem likely that the electrical industry will find what many other industries have already found, namely, that a large number of these items are not at all necessary; that the work could be done just as well, and with entire satisfaction, with a reduced number of models, and that considerable economy could be effected by discontinuing a large number of individual lines.

I hear much talk in the electrical industry of the need for economy—the urge for cheapness. No one will oppose the proposition that lesser costs are advantageous directly to the buyer and indirectly to others concerned. I wonder, however, if at times the drives for keeping costs down are not misdirected. Emphasis upon cheapness and the effort to hold the cost of an installation down to the very minimum defeat the objective of adequacy, which should be the aim of every branch of the industry.

Economy obtained by simplification of the materials used is in an entirely different category. Costs can be lessened to the contractor, and thus eventually also to the ultimate consumer, that is, the building owner, without in any way

Electrical inspectors were well represented at the contractors' convention. Left to right are R. L. Harpster, electrical inspector, West Palm Beach; Ellis C. Knox, chief electrical inspector, Miami; R. W. Meullier, electrical inspector, Ft. Lauderdale; Rudolph Baacke, Standard Electric Co., Jacksonville, and vice president of Jacksonville Chapter, N.E.C.A.; and James A. Harper, business manager, I.B.E.W. Local, West Palm Beach, all of Florida.

lessening the usefulness and adequacy of an installation. All that is necessary to achieve this purpose is for the different branches of the industry to want it, in the belief that it can be accomplished.

The question is sometimes raised whether the effort of an industry to limit the variety of its output may not be illegal and held to be a restraint of trade. The procedure followed by the Division of Simplified Practice of the National Bureau of Standards has been approved in its legal aspects by both the Federal Trade Commission and the U. S. Department of Justice.

Projects are initiated under this procedure only at the request of some branch of the industry, and are carried out only with the cooperation of a large percentage of both manufacturers, distributors, and consumers. The Division of Simplified Practice serves as a clearing house through which manufacturers, distributors and consumers can cooperate in developing their program for the elimination of the excessive and needless variety of sizes and types. The recommendation resulting from this cooperative effort is a record of the retained items, sizes, or varieties considered adequate for normal stock purposes. About 175 recommendations of this type have already been issued for a great variety of products.

It must be remembered that the successful application of simplified practice is dependent upon the voluntary support of manufacturers, distributors, and consumers. It results in maximum benefit only when it represents the consensus of all of these groups. It can be initiated by any one of these groups, and it would appear that in the electrical industry it might be introduced by the electrical contractors, who perhaps feel the need of it more than any other branch of the industry.

WHAT HAVE WE GOT TO SELL?

By Ray W. Ashley

Research Engineer, Electrical Contractors' Assn. of Chicago

Adapted from an address presented at the 38th Annual Convention of National Electrical Contractors' Association at Jacksonville, Florida, October 21-23, 1940.

TO DATE, the selling of the services of electrical contractors has been discussed without giving sufficient consideration to what there is to sell.

A well organized and efficient contracting firm may list the following, which not only embraces labor and material, but also, the services which should go with the labor and material in order to produce the proper kind of an installation.

1. An organization capable of handling work expeditiously.
2. An engineer or staff of engineers capable of designing electrical installations, or capable of detecting any flaws, omissions, or lack of coordination in plans and specifications prepared by others.
3. A staff of skilled and well organized mechanics.
4. Tools and equipment adequate to carry on the work at the most economical expenditure of labor.
5. Superintendents and foremen capable of coordinating their work with other trades or with plant operations, and who will follow the progress closely enough to prevent any lost motion or faulty work.
6. Sufficient men to insure the completion of work in accordance with scheduled dates.
7. Flexibility enough in man power to meet the fluctuating demands of the job.
8. Diversity of mechanics to meet the varying demands of the job, from the installation of conduit to the final connections of the most intricate equipment.
9. A reputation, augmented by sufficient financial backing, to insure the owner against defective work.
10. Proper and sufficient insurance to protect the owner against damage suits.

Just what methods one is to use for selling depends on the prospective buyer. In general we have three avenues open for selling: (1) the architect or engineer, (2) the general contractor, and (3) the owner.

The architect has always been our best salesman and we should aid him in every way possible. We should try and eliminate the "Jerry Cruncher" type of contractor who is always trying to resurrect profits buried in the hopes of extras. Extras are embarrassing to architects and the contractor should try and help avoid them. From the time the job is figured until it is completed, the contractor should be on his guard to see where he can help avoid trouble.

Architects and all sub-contractors should work together so that they can guarantee the owner, in advance, price, workmanship, and completion date.

There has been a growing tendency on the part of manufacturing plants and other large institutions

Frank A. Gardner, superintendent of underground system, City of Jacksonville; Howard H. Weber, U. S. Rubber Co., New York City; H. G. Miller, Miller Electric Co., Jacksonville; and W. O. Henderson, Henderson Electric Co., Jacksonville. Mr. Henderson is president of the Florida Association of Electrical Contractors and Dealers, president of the Jacksonville Chapter, N.E.C.A., and served as general chairman of the convention.

The chart at the right is a convenient method of showing the owner of a commercial or industrial establishment the savings that can be realized by letting electrical contractors do his work.

COMPARATIVE COSTS
FOR ELECTRICAL INSTALLATIONS

ITEMS OF EXPENSE	CONTRACTOR DOES WORK①			OWNER DOES WORK		
	REMARKS	LABOR	MATERIAL	REMARKS	LABOR	MATERIAL
MATERIAL REQUIRED FOR JOB			7000.00	BASED ON CONTRACTOR'S PR		7000.00
TRADE DIFFERENTIAL & QUANT. DISC②				AV. 10% LESS THAN CONTR'S		700.00
MAT. WASTED, SPOILED, & NOT USED				6% OF MAT. COST (7700.00)		462.00
TAKING OFF QUANTITIES & LISTING③	INCL. IN GEN. OVERHEAD			CONST. ENGRS. TIME— 2% OF MAT. COST (7700.00)		154.00
ORDERING MAT.— ASSISTING PUR. AGENT	" " " "			CONST. ENGR'S. TIME— 1% OF MAT. COST (7700.00)		77.00
FOLLOWING UP & COORDINATING DEL	" " " "			CONST. ENGR'S. TIME— 1-½% OF MAT. COST (7700.00)		115.50
LABOR NECESS. FOR JOB	BY AN EFFICIENT ORGANIZATION 3000 HRS. AT 1.50 (AV.)	4500.00		BASED ON TIME REQ. BY CONTR. 3000 HRS. AT 1.00 (AV.)	3000.00	
LAB. LOST DUE TO FLUCT. OF JOB, UNSKILLED MECHANICS, & LACK OF ORGANIZATION④					1400.00	
ELECT. CONST. ENGINEER⑤	INCL. IN GEN. OH. & LAB. BURDEN			TIME SPENT DURING ACT. CONST'N. 12 WKS. AT 75.00	900.00	
SHOP DRAWINGS & PLANS	LAB.—2 WKS. AT 50.00 MAT. & BLUE PRINTING—25.00	100.00	25.00	LAB.—4 WKS. AT 40.00 MAT. & BLUE PRINTING—25.00	160.00	25.00
TOOL COSTS—CONSUMED, DEPRECIATED, & TESTING EQUIPMENT⑥	5% OF LAB.—VALUE OF TOOLS AVAILABLE FOR JOB—8000.00	225.00		EST. 50% OF VALUE OF TOOLS FUR. BY CONTRACTOR	400.00	
INSURANCES⑦	5% OF LAB. (4500.00)	225.00		5% LAB (4400.00)	220.00	
TOTALS		5050.00	7025.00		6080.00	8533.50
GEN. OVERHEAD & LABOR BURDEN	30% ON LAB. (TEE 10% ON MAT.—HANDELING & GUARN.	1515.00	702.50	30% ON LAB. 5% ON MAT.	1824.00	426.75
TOTAL COSTS		6565.00	7727.50		7904.00	8960.25
PROFIT	10% ON LAB. & 10% ON MAT.	656.50	772.75			
TOTAL COSTS TO OWNER		7221.50	8500.25		7904.00	8960.25
COMPLETE COST	15721.75			16864.25		

NOTES
① CONTRACTOR GUARANTEES—WORKMANSHIP, MATERIALS, OPERATION, & COMPLETION DATE. CONTRACTOR REQUIRES SIX WEEKS TO COMPL. JOB—OWNER REQUIRES TWELVE WEEKS.
② THIS ITEM ALSO INCLUDES LOSS DUE TO INEXPERIENCE IN THE SELECTION & PURCHASING OF ELECTRICAL MATERIALS & EQUIPMENT.
③ THIS, TO BE DONE PROPERLY, REQUIRES THE SERVICES OF A WELL TRAINED ELECTRICAL CONSTRUCTION ENGINEER.
④ CONTRACTORS EMPLOY MECHANICS WHO HAVE BEEN SELECTED AND TRAINED OVER A PERIOD OF YEARS AND WHO CAN EXECUTE WORK WITH DISPATCH.
⑤ TO GET THE PROPER INSTALLATION, IT IS IMPERATIVE THAT THE JOB BE IN CHARGE OF AN ENGINEER WHO SPECIALIZES IN ELECTRICAL CONST. WORK & IS POSTED ON PRESENT EQUIPMENT, CODE REQ., & MODERN INSTALLATION PRACTICES.
⑥ RESEARCH SHOWS THAT FOR ECONOMICAL EXPENDITURE OF LABOR, THE CONTRACTOR SHOULD HAVE APPROX. $800.00 WORTH OF TOOLS AVAILABLE FOR THE JOB. IN ADDITION TO THE TOOLS SUPPLIED BY THE CONTR., THERE WILL BE THOSE OWNED BY THE MECHANICS WITH TEN MEN ON THE JOB, THE COMPLETE COMPLEMENT OF TOOLS, MADE AVAILABLE BY THE CONTR'S ORGANIZATION, WOULD REPRESENT AN INVESTMENT OF APPROX. $1800.00. MAN HOURS ARE SAVED BY SUFFICIENT AND PROPER TOOLS.
⑦ NO ALLOWANCE HAS BEEN MADE FOR THE LOSSES WHICH THE OWNER (EMPLOYING HIS OWN MEN) WILL INCUR BY UNBALANCING HIS UNEMPLOYMENT COMPENSATION RECORD. THIS WILL AFFECT THE ENTIRE PLANT PAYROLL.

ELECTRICAL CONTRACTORS' ASS'N. OF CITY OF CHICAGO 10-1-40

to organize crews and install their own electrical work. This is in part due to the fact that in the past, some contractors have not delivered the right kind of a job. This has created the wrong kind of an impression of electrical contractors in general. In addition to furnishing labor and material, the contractor should furnish engineering service, supervision, and ample tools.

Contractors who are properly equipped and organized can save owners ten to twenty-five per cent on the cost of their electrical work, besides giving them a better installation. The contractor guarantees workmanship, materials, operation, price, and completion date. Owners contemplating the advisability of doing their own work, overlook many items of expense. (See accompanying table of comparative costs).

Owners sometimes want to buy their own materials and have the contractor furnish labor only. Whether or not the contractor buys the materials, in order to furnish an economical installation, he must render a service in connection with same. He must study the plans and specifications so that the proper men and tools can be selected for the job. He must check all materials to see that they conform to codes and best installation and engineering practices. He must also check materials to see that they will be delivered at the proper time and in such shape that they can be properly installed at the least cost to the owner.

It is generally agreed that for such services the contractor should receive a remuneration equal to ten per cent of the labor cost. The contractor must insist on selling this service with labor if he is going to give the most economical job. Electrical contracting is a service trade and must insist on selling and delivering service.

Many of our leading industrial firms use electrical contractors for all of their construction work. These firms have men in charge who are aware of all the costs and appreciate the necessity of employing a specialist. Something should be done to acquaint all buyers with

R. Edenfield, Edenfield Company, Nashville; Clark Taliaferro, General Electric Co., Atlanta; and H. G. Knoderer, General Electric Co., Bridgeport, Conn.

T. H. Wells, Jr., Bussmann Mfg. Co., Birmingham; L. E. Lawson, Lawson Electric Co., Chattanooga; and W. F. Watkins, Bussmann Mfg. Co., Atlanta.

these facts.

Contractors should advertise so the public will know what they have to furnish. Electrical contractors really have something worthwhile to sell and it is something that the public needs and can not buy elsewhere.

WHAT MIAMI IS DOING TOWARDS ADEQUATE WIRING

By Ellis C. Knox

Chief Electrical Inspector
City of Miami, Florida

Adapted from an address presented at the 38th Annual Convention of National Electrical Contractors' Association at Jacksonville, Florida, October 21-23, 1940.

ABOUT five years ago, we began to build our city out of the depression. Building permits issued during the last five years average about $1,250,000 per month, and are still continuing at this pace. For 2½ years, the electrical inspection division continued to inspect this work, using the National Electrical Code, and what we consider in the Miami district, a fairly complete and strict electrical ordinance.

Yet something seemed to be wrong. The whole electrical industry seemed to be stumbling along, and particularly was this noticeable on small work. Many arguments developed between the owner and the electrical contractor. The price range on many jobs was completely out of proportion. This was caused by the fact that the owner carried in his head plans and specifications for each job, repeating as best he could for each prospective bidder, and pointing out on the wall the location of switches, receptacles, brackets, distribution panels, etc. Consequently, no two electrical contractors were given the same wiring layout, and, therefore, the identical picture was not grasped by the two contractors, thereby causing confusion, price variations, installations not properly designed to suit the occupants' need, and in many instances the wiring was obsolete before the tenant ever moved into his residence.

On January 1st, 1938, with complete approval from the electrical contractors and in full cooperation with the chief building inspector, the following rule was put into effect: "No building permit shall be issued until electrical wiring plan has been submitted and approval by the Electrical Inspection Division."

Left to right, E. W. Landmeier, vice president and chief engineer, Wadsworth Electric Mfg. Co., Covington, Ky.; J. T. Clark, southeastern representative for Wadsworth, Atlanta; Edgar E. Dawes, manufacturers' representative, Atlanta; and William E. Hopper, manufacturers' representative, also of Atlanta.

Yes, we knew that consideration must be given to wiring installations at the same time consideration was being given to structural designs and occupational requirements. This requirement was expected to accomplish many worthwhile objectives, namely: (1) It gave the division an opportunity to check wiring layouts to determine if they would meet all the requirements governing wiring installations, and to check occupational needs. (2) It futher set up a minimum standard of outlets, switches, etc., which could be changed only by the owner and architect, and this must be done in writing. (3) Last, but not least, this system established fair competition among all electrical contractors, by definitely creating a bottom, as it were, in every wiring layout submitted.

Architects Cooperate

About 50 to 60 percent of the registered architects in the Miami area, realizing the value of such requirement and to show their cooperation in this matter, started immediately to accumulate necessary data and code rulings so that they could fully comply with our ordinances. Weekly meetings with the architects, electrical contractors, the chief building inspector and myself, were held. Special information was given to them by bulletin; the electrical contractors called on them and helped them layout the wiring systems; and the utility company placed electrical engineers in the field to assist the architect in giving him the information he desired.

For six months I corrected his plan and helped the architect in every way possible, in some instances drawing complete set of plans so the wiring layouts would be satisfactory and the building permit could be secured by the owner or general contractor. After this six months' training period was completed, which we felt the architects were justly entitled to, we condemned any plans submitted to the office which did not fully meet our requirements, placing all architects on the same footing.

Condemned plans were placed in the "rejected file", and the building permit was held up until the plans were revised, showing the corrected wiring layout. The building contractor or the owner, not being able to receive their building permit as expected because of the rejected wiring layout, were brought into

(*Continued on page* 52)

APPLIANCE Service

Short Cuts and Time Savers In Appliance Servicing

By Allen Parker

Automatic Expansion Valve Adjustment

Adjusting an automatic expansion valve on a domestic refrigerator sometimes presents quite a problem, especially when an occasion arises that makes it necessary to work on a refrigerator when the low pressure setting is not known and a service manual is not available. The automatic expansion valve always maintains a constant pressure setting, and if the pressure should be slightly too high, the temperature in the evaporator will never be reduced to the cutting out point of the thermostat with the result that the unit runs continuously. On the other hand with the pressure setting slightly too low, the pumping capacity of the compressor is reduced to such an extent that it can never handle the load and cut off.

In most cases, it is essential that the correct setting be attained. This is usually done by installing the gauge on the low pressure side and adjusting the setting to a point thought to be about right. However, the heat transferring ability of different makes of evaporators vary to such an extent that it is hard to guess the relative temperature of the evaporator from a corresponding pressure setting.

I have found that the expansion valve adjustment can usually be very satisfactorily made by placing a small amount of water in the evaporator and freezing the bulb of a pocket thermometer in it and then checking the cut out point of the thermostat at the different settings. This method does offer a definite knowledge of what the compressor is doing, and at the same time checks the operation of the thermostat. It also offers a nice saving in time on those units on which it is difficult to install a gauge, as the complete adjustment can be made without a gauge.

Removing Scale From Water Cooled Condenser

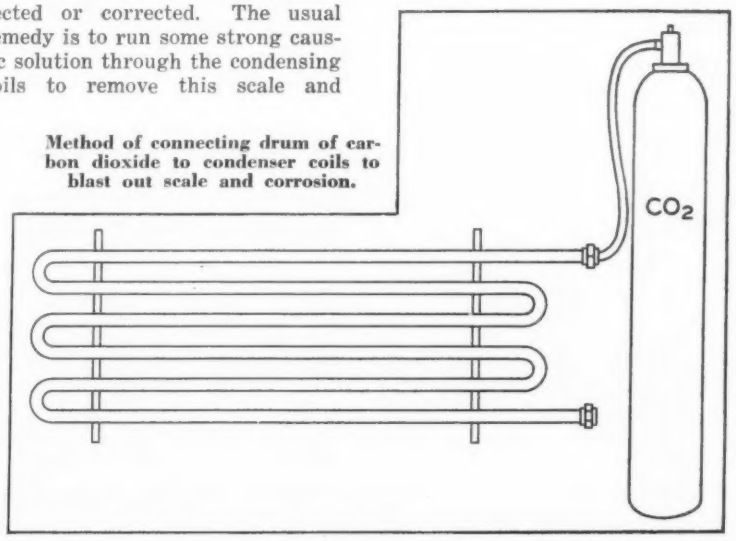
Refrigerator service men often encounter water cooled compressors with condensers that are partially restricted with scale and corrosion. The efficiency of heat transmission from the water to the refrigerant is greatly reduced, thereby causing high head pressure, with the resulting high temperature and carbonization of oil in the head and on high side of the compressor.

This condition sometimes is allowed to go on until the thermal relays, or high head pressure limiting device, begins to cut the motor off, and sometimes the motor burns out before the trouble is detected or corrected. The usual remedy is to run some strong caustic solution through the condensing coils to remove this scale and sludge. This produces fair results but it is doubtful if full efficiency is restored for in some places the scale may be considerably thicker. Of course, about the only other method of correction is to replace the condenser with a new one which is rather expensive.

We have tried an idea that has produced good results with a minimum of labor and expense involved. We connect a drum of carbon dioxide (CO_2) which is a very high pressure gas, to the inlet of the condenser. With two or three quick releases of this high pressure gas the restriction can be cleared without difficulty in most cases. And then to complete the job we pour a handful of steel air rifle shot into the inlet of the condenser and again connect it to the CO_2 drum and apply the pressure sharply. This will create a bombarding action, and bring out this remaining scale. If satisfactory results are not obtained the first time, the shot may be run through as many times as necessary.

Belt Adjustments on Refrigeration Units

The majority of all service calls on refrigerators are made without checking the adjustment of the drive belts, and in many cases if they are thought to be loose, they are tightened considerably just to be sure there is no slippage. In either case there may be trouble for a belt that is too tight or too loose will not operate properly. A belt that is loose may slip and burn the belt or motor. A burning belt



Method of connecting drum of carbon dioxide to condenser coils to blast out scale and corrosion.

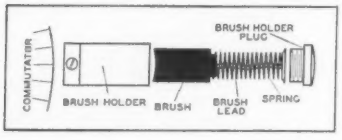
will give off the odor of burning rubber which will permeate the house and may last for several days after the trouble has been corrected.

A belt that is too tight may cause an undue load on the motor, cause the motor overload relay to keep operating, and eventually burn out as well as produce poor refrigeration operation. On units with a manual reset, a tight belt will require much unnecessary attention, and the life of the motor bearings will be materially shortened.

The belt tension should always be checked when a service call is made. This will eliminate the possibility of a trouble that could not be detected with gauges. The Vee-type belt as commonly used is designed to operate with a small amount of tension. A simple method of checking this is to press the top of the belt lightly with the first finger. A correct adjustment should allow the belt to be depressed about one-half inch.

Small Motor Brush Installation Kink

Some electric motors are equipped with brushes having a wire lead attached which is provided with a metal disc that retains the brush tension spring in place on the brush. Such a brush is illustrated below.



When installing such a brush, the turning of the threaded plug in the brush holder may twist the brush lead and cause its length to be reduced. This reduction in the length of the brush lead compresses the brush tension spring, and as the brush wears, the spring not having full travel, will not maintain tension on the brush.

It is suggested as a remedy that the brush lead be twisted in a direction opposite to that of the direction in which the brush holder plug is threaded, before inserting the brush in the brush holder. Then when the brush is placed in the brush holder and the plug screwed into the end of the brush holder, the brush lead will untwist and release the spring to full tension or near full tension.

MOTOR Service

Connecting Diagrams for Lap Wound A-c Motors

By A. C. Roe

Railway Motor Engineer
Westinghouse Electric & Mfg. Co.

IN some cases a desired voltage change can be made by changing a motor winding from a star to delta, or a delta to a star connection. Figs. 47 and 48 can be used to indicate the major items involved in changing the connections. For example, to change a two parallel star (Fig. 47) to a two parallel delta (Fig. 48), we first open all star connections and remove the star ring without disturbing the connections to line leads, A-B-C. Then checking Fig. 48, we find that the bottom of group 13 and the top of group 28 are both connected to the C lead. Next, we connect the bottom of group 15 and the top of group 30 to the B lead; and finally connect the bottom of group 11 and the top of group 26 to the A lead.

To convert a two parallel delta (Fig. 48) to a two parallel star connection, Fig. 47, we must separate the *end* of each parallel leg from the line leads A-B-C. These connections, as shown in Fig. 48, are the bottom of groups 11-13-15 and the tops of groups 26, 28, 30. This leaves six leads that must be connected together with one jumper to form the star ring. This type of change can be simplified by using a small schematic diagram as a guide.

Adapting the windings of lap wound induction motors, for operation at different line voltages, covers quite a range of possibilities, and the following data will discuss the basic principles of the various changes, from the simple two to one change, to the more involved change that permits changing the horsepower by changing the affect of the line voltage on the winding.

The first basic rule to remember is that induction motor windings are classified into voltage groups as indicated in Table I in the July 1940 issue of ELECTRICAL SOUTH. Therefore, the ground, phase, and jumper insulation, used on the coils must be considered, before consideration can be given to using a higher line voltage for any winding.

For example, a winding in the 600-volt class cannot be used on an 1100-volt line, even if the winding can be reconnected, nor can a 4600-volt winding be used on 6600-volt line, etc. Thus the voltage changes must not be raised to a higher group without rewinding with the proper insulation.

The simplest changes are the so-called two to one as with dual voltage connections for 110 to 220, 220 to 440, or vice versa. In these changes, the connection at the present voltage is determined, and then checked with the number of poles to determine whether the connection can be doubled or halved as the case may be.

For example, consider an eight-pole three-phase, 4-parallel star connection for 220 volts, this winding can be changed for 110 line voltage by using an eight-parallel

●

Another article in this series will appear next month, in which voltages changes in this type of winding will be duscussed further.

star connection, or for 440 volt line voltage by using a two-parallel star connection.

For a quick check on the possibilities of reconnecting any winding for a new line voltage within its voltage classification, first reduce the winding to the series voltage, by multiplying the line voltage by the number of parallels in the existing connection, or for the above case, 4-parallel star at 220 volts, the series star connection would be good for 4 x 220 or 880 volts. Then for eight poles we can use a 2, 4, or 8 parallel star connection, thus the winding can be used for a 440, 220 or 110 volt line voltage by changing to a two or eight parallel star connection.

The winding can be changed to a delta connection for other voltage combinations and this will be considered in a future article but this article indicates the voltage changes possible within a voltage group, with the same type of connection as star or delta.

The next article will present the 10 pole, three-phase, star and delta, 5 and 10 parallel, 9 lead, connection diagrams, and continue the discussion on voltage changes possible with the same type of connection.

Connection Diagrams

The accompanying diagrams give connection data for 10-pole, 3-phase, 2-parallel, star and delta lap-wound induction motors with three leads.

Fig. 47 is the standard two-parallel, three-lead star connection with a star ring having six connections. This diagram can be arranged for equalizer connections as indicated by the dotted lines in the schematic sketch in Fig. 47. The meaning and use of equalizer connections were discussed in the preceding data on 4-6-8 pole windings.

With all the ten and twelve pole diagrams used in this second series, the second series of each parallel leg is started on the opposite side of the winding as group 1 and 16, 3 and 18, 29 and 14 in Fig. 47. This requires a long jumper but results in a more balanced winding magnetically.

The diagram shown in Fig. 48 is the standard three-lead, two-parallel delta connection where each motor line lead as A, B, and C, has four internal winding connections attached to it. This diagram can also be used for equalizer connections as shown by the dotted lines in the center sketch of Fig. 48.

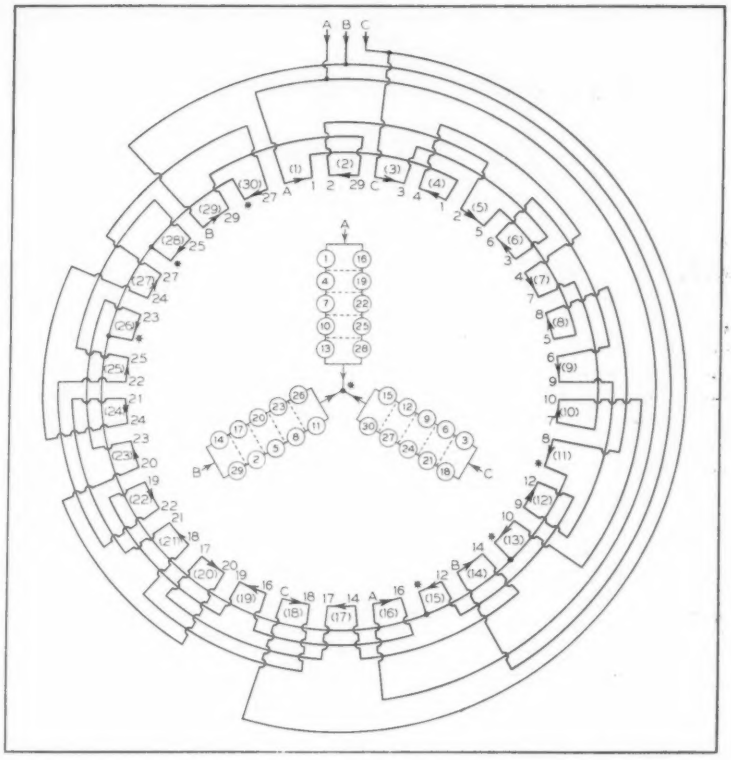


Fig. 47. Connection diagram for 10-pole, 3-phase, 2-parallel star, lap-wound induction motor with 3 leads. This diagram can be arranged for equalizer connections as indicated by the dotted lines.

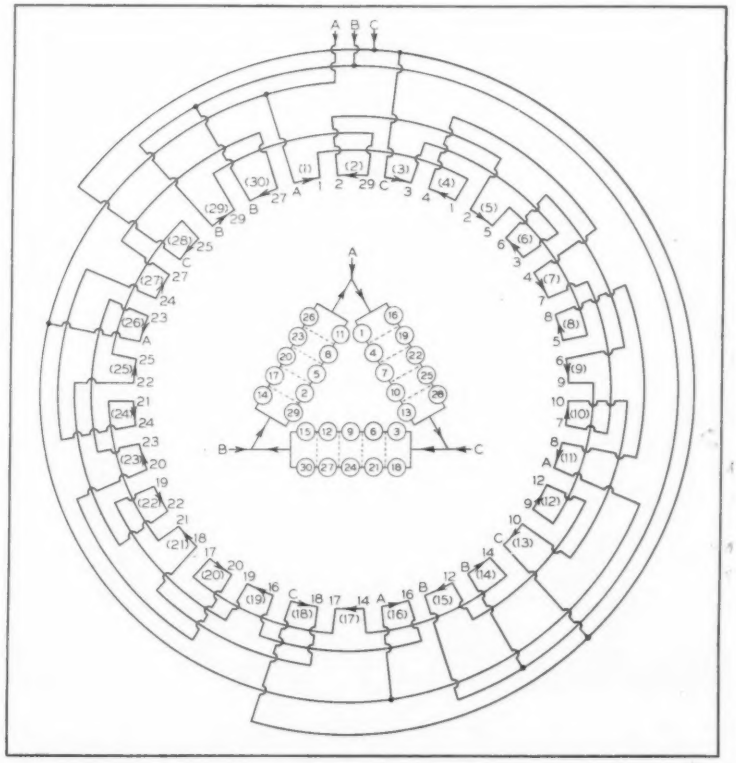


Fig. 48. Connection diagram for 10-pole, 3-phase, 2-parallel delta, lap-wound induction motor with 3 leads. This diagram can be arranged for equalizer connections as indicated by the dotted lines.

Substation Maintenance Unit Is Efficient and Mobile

By Edgar Chesnutt

Arkansas Power & Light Co.
Pine Bluff, Ark.

MAXIMUM efficiency with minimum efforts and greatly improved working conditions is achieved through the use of a new substation maintenance unit that has been constructed by the Arkansas Power and Light Company.

The unit consists of a Ford V-8 95 hp cab-over-engine truck, with two-speed rear axle and reinforced frame, and a 21-foot drop frame trailer with underspring springs.

The trailer is equipped with a No. 84-36P DeLaval transformer oil purifier and a 2-inch, 20-section filter press, both located in the lower part of the trailer.

Framework of the trailer is heavy iron, with sheet metal and plywood sides, metal top, and insulation that checks heat and cold. A 2-inch exhaust fan near the top front of the trailer provides ventilation and is protected from rain by metal louvres.

Electrical Connections

A reel of 200 feet of power cable that can be fed through portholes on either side of the floor, brings in the current for operating the equipment. Coming in at 220 volts,

The views of the new portable substation maintenance unit recently placed in service by the Arkansas Power and Light Company show many of its convenience features. (1) View of the maintenance trailer while under construction showing location of power cable reel, air compressor, slanting hose holders, etc. (2) Interior view showing tool drawers and work bench. Directly behind work bench is electrical junction box and the power cable reel. (3) Shown here is the clean oil tank and pump for filling bushings, small transformers, etc. (4) Back doors of trailers, when opened, form awning and steps. Note method of locking hose holders with a single lock. (5) Rear view.

the current passes through a junction box containing a transformer that steps down to 110 volts for light motors.

To assure absolute leveling for the centrifical oil purifier, spirit levels were attached to the base. The trailer is leveled by means of an adjustable landing gear and two portable two-ton jacks used under the sides.

In each side of the trailer is a rack of five iron pipes, one above the other at a slant, used for carrying 10-foot sections of hose. Nipples at the lower ends of the pipes drain off all oil coming from the hose sections. Inch and a quarter hose is used for the feed into the centrifuge, and one inch hose carries the clean oil back to the equipment.

A work bench is located in the raised portion of the trailer just ahead of the centrifuge. An air compressor is located at the left front of the trailer for operating a spray gun and air cleaner. This is used to clean and paint substation equipment.

The truck has large metal boxes built into the sides just behind the cab, one for carrying tools and spare parts, and the other for the luggage of operators.

Intake and discharge pipes of the purifier go through the floor at the rear of the trailer and are toed to make connections easy from either side. A six-volt light at the front top lights the interior of the trailer until the outside power connection can be made.

The rear wheels of the truck and those of the trailer have dual tires.

Conveniences Added

The back of the trailer opens horizontally, the top forming an awning, and the bottom containing steps that make it easy to get into and out of the trailer.

A clean oil tank and pump are located at the right front of the trailer for filling bushings, small transformers and other light equipment.

The trailer was designed by E. C. Stewart, system operator, and Sloan Cummins, superintendent of transportation of the Arkansas Power and Light Company. It was built in the plant of the Standard Steel Products Company, at Pine Bluff, without the aid of blueprints.

The regular substation maintenance crew, composed of Robert Stemmle and John D. Rairigh, will have charge of operating the new unit.

Speedy Construction For Defense Power Projects

AS POWER requirements for defense projects become more definitely known in forthcoming months, many utility companies will be called upon to provide sizeable blocks of power upon very short notice at what may be points remote from existing service facilities. A typical instance of this kind was experienced by the Southwestern Light and Power Company, of Oklahoma, recently, when the company was asked to supply 400 kilowatts at a point on the extreme edge of the Fort Sill military reservation, site of the Field Artillery School.

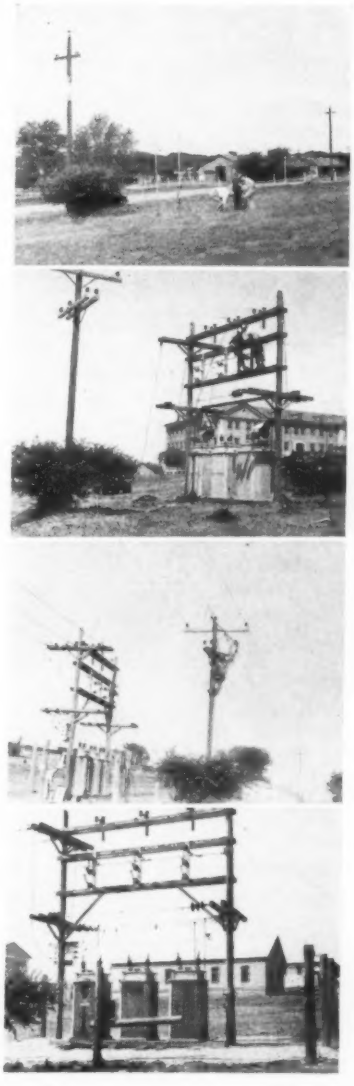
The Field Artillery School, in common with all other branches of our national defense organizations, has experienced marked expansion and increased activities in the past few weeks. The recent organization of the 349th Field Artillery regiment is an example of this expansion, and the location of this regiment at Fort Sill presented a serious problem with respect to the supplying of electric, gas, and water facilities to the barracks of the new regiment.

The site selected is on the extreme edge of the present occupied area of the Fort, and is over a mile from the electric distribution center. The only available feeder is an underground cable, which was already operating at full load. Plans had been submitted and approved covering the replacement of this cable with a larger one, but the new cable was not available.

A 13,200 volt line of the Southwestern Light & Power Company which supplied the Fort Sill Substation was located near the barracks of the 349th Field Artillery regiment, so the Quartermaster Corps requested the Southwestern Light & Power Company to build a small temporary substation to serve approximately 400 kilowatts in this area until the new cable could be installed.

This request was received by the Company late Monday evening, and by the following morning necessary authorization had been received to proceed with this work. Sketches and a bill of material were pre-

(*Continued on page* 46)



Typical of national defense power projects which utility companies may be called upon to provide at short notice is this substation built by the Southwestern Light & Power Co., of Oklahoma, in two days to provide 400 kilowatts load for regimental barracks on the Fort Sill reservation. Actual working time required was fifteen hours. These views show progress of the work, from top to bottom: (1) Selecting site. (2) Substation partially erected. (3) Live-line maintenance crew connecting station to energized 13,200 volt line. (4) Completed station in service.

Low Maintenance Costs for Air Breakers Indicated

AFTER experience for several years with De-ion air circuit breakers applied to a variety of services, Philadelphia Electric Company believes that this breaker has passed the experimental stage. There are about eighty breakers of this Westinghouse type now in service on the system, of which sixty-eight were installed during 1939 and early 1940.

Nine Years of Service

Eleven of the breakers are on 13,200 volt service in a generating station and are the largest De-ion air breakers built to date, having an interrupting rating of 37,000 amperes with a continuous current rating of 2000 and 3000 amperes. Twelve breakers have been in service from two to nine years on 13,200 and 4000 volt service, and fifty breakers on 13,200 volt service and one breaker on 4000 volt service have just been installed. Based on experience with the twelve breakers first installed, Philadelphia Electric Co. believes that this type of breaker will be less expensive to maintain than most oil circuit breakers of comparable rating and service.

The wide range of successful applications covered are shown in the accompanying tabulation. Significant performance data included:

Maximum Number of Operations on Any One Breaker—25 per year (based on the 1200 ampere, 100,000 kva, 7.5 kv breaker).

Number Automatic Openings, All Breakers—18 average per year.

Approximate Current Interrupted on Automatic Openings—9500 amperes, maximum; 3700 amperes, average.

Maximum and average currents interrupted apply specifically to the 500,000 kva breakers at Paschall and Washington, and only for the first three years of operation, following which no complete short circuit calculations were made for these and other breakers. Although installed two years, no operation record has been kept of the Wyncote breaker due to the nature of its service as a transfer breaker.

Application of De-ion Air Circuit Breakers On Philadelphia System

No of De-ion Breakers...	Station	Years in Service....	Rated KV.....	Rated Interrupting Amps	Kind of Service
1	Paschall	9	15	21750 at 13.8 Kv.	Substation & Industrial Feeders
1	Washington	9	15	21750 at 13.8 Kv.	Substation & Ind. Feed.
2	Phoenixville	5	7.5	12500 at 4.5 Kv.	Transf. Banks.
6	Phoenixville	4	7.5	12500 at 4.5 Kv.	4 Kv. Distribution Circ.
1	Ambler	2	7.5	12500 at 4.5 Kv.	4 Kv. Distribution Circ.
1	Wyncote	2	7.5	20000 at 5 Kv.	Bus Transfer
3	Hunting Park	*	7.5	12500 at 5 Kv.	Bus Transfer
3	Marcus Hook	*	15	10900 at 13.8 Kv.	(Transf. Bk. & Bus Sec.)
1	Schuylkill	*	15	21750 at 13.8 Kv.	Converter Magnetizing
1	Schuylkill	*	15	10900 at 13.8 Kv.	Converter Starting
1	Schuylkill	*	15	37000 at 13.8 Kv.	Converter Running
2	Schuylkill	*	15	32000 at 13.8 Kv.	Converter 25 cycle
3	Schuylkill	*	15	37000 at 13.8 Kv.	Transf. Banks
2	Schuylkill	*	15	10900 at 13.8 Kv.	Phase Converter
1	Schuylkill	*	15	10900 at 13.8 Kv.	Gen N'tral (Single Pole)

* Recently installed—no operating records as yet compiled.

With 80 De-ion air breakers in service, Philadelphia Electric Company believes this type of unit will be less expensive to maintain than most oil circuit breakers of comparable rating and service. Inspection is also simplified by accessibility of operating parts. Here, the operator is checking the auxilliary relay on the closing mechanism for the 15 kv half million kva starting breaker for controlling a frequency changer set at Schuylkille Station.

Recently, a new compressed air breaker, Type CA, was announced by Westinghouse. Designed for interrupting capacities as high as 2,500,000 kva, the new breaker interrupts arcs on the "cross blast" principle, in which the air stream is blown at right angles to the arc. The new breakers are for indoor service at 15,000 volts.

Inspection Time Reduced

General inspection and maintenance practice is to inspect the 500,000 kva breakers every other year and the 100,000 kva breakers annually. However, both types may be given visual inspection after severe short circuit interruptions. The time required for inspection is less than that required for equivalent oil circuit breakers except when it is necessary to run a bell test on the De-ion grid stack. The latter is a very slow process on the older styles of breakers, but is generally not necessary. It has been done only once on each of the 500,000 kva breakers.

NEWS of the INDUSTRY

"Profit Party" Campaign Conducted in Mississippi

Just as the republicans and democrats held their conventions, nominated candidates, drew up a platform and proceeded to go out after votes, so has the Mississippi Power and Light Company just completed a series of "third party" conventions throughout the company's territory, conventions marked with banners, standard bearers, loud-speakers, keynote address, a platform and nominations.

Only differences between this Mississippi "third party" convention and the regulation political convention were: it was called "The Profit Party," its delegates were gas and electric appliance dealers, distributors, manufacturers, and jobbers; its platform of sales was built to get profits instead of votes; and every dealer-delegate to the seven-city series of conventions was nominated as a "candidate for profits."

In that dramatic way, the Mississippi Power and Light Co. introduced its fall "Profit Party" campaign to dealers in each of the company's divisions. Coming at a time when the national and local political pots were boiling over, this unique promotion drew extraordinary interest not only among appliance merchandisers but also among members of the Mississippi press.

Delegates to the Profit Party wore lapel buttons reading, "I'm a Candidate for Profit." Following a banquet, Lee M. Taylor, sales promotion and advertising manager of the Mississippi Power & Light Co., made the "keynote address"—interrupted from time to time by the loud cheers and marching of "planted" standard bearers.

After the keynote address the company's four-month sales promotion and advertising program was presented to cooperating dealers in the form of an interesting film . . . explained by two back-stage voices over a public address system. This program was the Profit Party's "platform" and consisted of the following "planks":

Plank No. 1—Lighting
Plank No. 2—The Years Ahead for Lighting.
Plank No. 3—Heating
Plank No. 4—Other Services
Plank No. 5—Sales Training

The second plank, "The Years Ahead for Lighting," described the company's five-year lighting program.

Following presentation of the "platform," every dealer in the room was nominated "by acclamation" as a "candidate for profit," and each "candidate" left the convention hall to go out and "stump" for profits.

Roy Palmer Named Sales Head for Duke

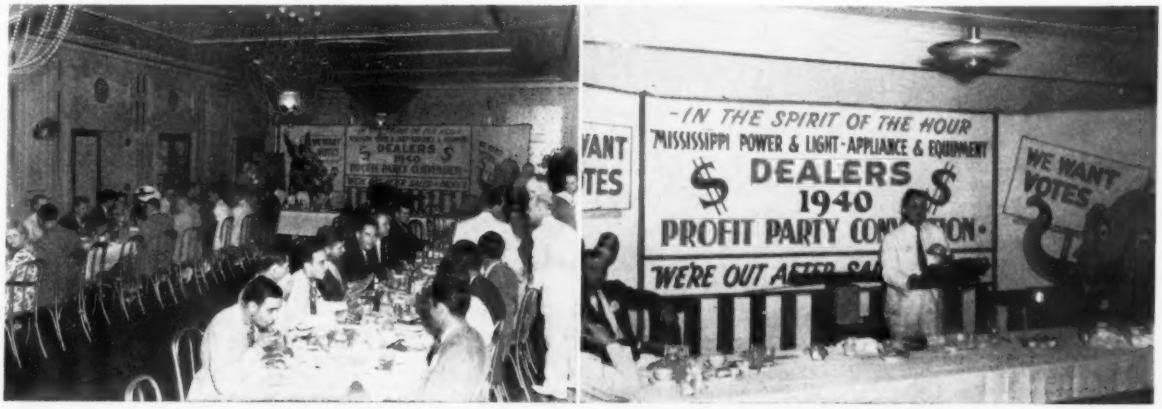
Roy A. Palmer, formerly illuminating engineer and more recently assistant advertising and merchandising manager, of Duke Power Company, Charlotte, N. C., has been appointed advertising and merchandising manager, succeeding the late John Paul Lucas.

Mr. Palmer received a Bachelor of Science degree in electrical engineering from the University of Minnesota in 1921, and entered the employ of the National Lamp Works, engineering department, Nela Park, Cleveland, Ohio, immediately after graduation. In 1926 he went to Hollywood, Calif., to assist in introducing the Mazda lamp for filming motion pictures, returning to Nela Park in the spring of 1928.

Roy A. Palmer

Later that year Mr. Palmer accepted the position of illuminating engineer for the Southern Public Utilities Co., Charlotte, now the Duke Power Co., becoming in addition assistant merchandising and advertising manager.

Mr. Palmer served as a delegate to the International Commission on Illumination in London, England, in 1931. He has been active in the Illuminating Engineering Society for a number of years, having served as director from 1932-35 and



L. M. Taylor, manager of sales promotion and advertising for Mississippi Power & Light Co., was keynoter at the series of "Third Party" conventions just completed throughout the company's territory. These meetings introduced the company's fall "Profit Party" campaign to dealers, jobbers and manufacturers.

as chairman and member of several technical committees. He is also a member of the British Illuminating Engineering Society, American Society for the Advancement of Science, and the American Optical Society. Mr. Palmer is the author of many articles which have been published in technical journals and popular magazines.

Carolina Contractors Meet in Rocky Mount

Cooperation between contractors and wholesale and retail dealers was stressed at the annual meeting of the Eastern Section of the North Carolina Association of Electrical Industries at Rocky Mount, N. C., September 25. Some 400 persons attended the one-day meet, a new attendance record.

T. W. Wilmer, of the Chewning and Wilmer Company, of Richmond, Va., told the gathering that "there is need for closer cooperation between electrical contractors in order to meet and deal with the national association of distributors and manufacturers of the industry." Electrical men, he said, cannot hope to legislate their business from slumps when they are not individually coping with their problems.

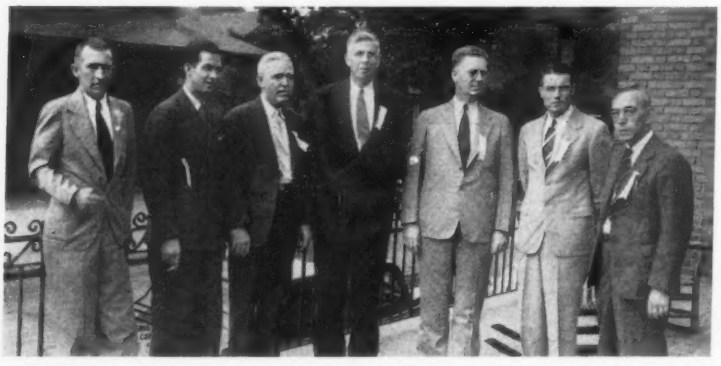
Ralph K. Robinson, of Charlotte, president of the North Carolina Association of Electrical Contractors, urged that stronger associations be built up in the electrical industry in order that the different fields might be better coordinated.

Another speaker, Roy Palmer, illuminating engineer, of the Duke Power Company, Charlotte, told the salesmen that they should "talk of the need rather than the technical aspects of the article." Customers, he said, should be told of the benefits to home, store or business through the purchase of modern electrical devices.

L. W. Hayes, branch manager of the Westinghouse Electric Supply Company, Raleigh, N. C., said electrical jobbers should "carry adequate stocks and supplies of products; acquire competent and licensed personnel and thus give better service; sell only through dealers; and make use of technicians and specialists in apparatus and lighting."

Other speakers heard during the meeting included: J. H. Wentz, credit manager of the Graybar Electric Company, of Richmond, Va., who spoke on the technical problems of credits and accounting; Martin Swartz, superintendent of public utilities, at Greenville, N. C., who spoke on cooperation with industry; and H. M. Horton, illuminating engineer of the General Electric Company, of Atlanta, who discussed fluorescent lighting and what is to be expected of it in the future.

Included on the day's program was a barbecue given by the City of Rocky Mount during the noon recess, and a supper meeting at the Ricks Hotel at which T. A. Avera, executive vice president of the Rocky Mount Chamber of Commerce, was the principal speaker.



Leaders of the North Carolina Association of Electrical Contractors held a most successful meeting in Rocky Mount with nearly 400 in attendance. Left to right are J. E. May, of Kinston, committeeman; Dwight L. Casey, of Salisbury, newly appointed secretary who will establish association headquarters in Charlotte; J. G. Hammond, Rocky Mount, chairman of the convention committee; R. K. Robinson, of Charlotte, president of the association; R. O. Purvis, of Rocky Mount, committeeman; D. S. Nichols, of Wilson, committeeman; and San Goldback, of the Atlantic Electric Corp., Norfolk, Va.

Exchange Sales Section To Meet in Atlanta

The annual fall sales conference of the Sales Section, Southeastern Electric Exchange, under the chairmanship of R. B. Roberts, general sales manager, Florida Power & Light, Co., Miami, will be held at the Henry Grady Hotel, Atlanta, Ga., on November 14, 15 and 16.

Promotions Announced by Carolina Power and Light

H. G. Isley, connected with the Carolina Power and Light Company for the past 21 years, has been named general sales manager succeeding S. P. Vecker, now vice president, according to announcement by L. V. Sutton, president.

H. G. Isley

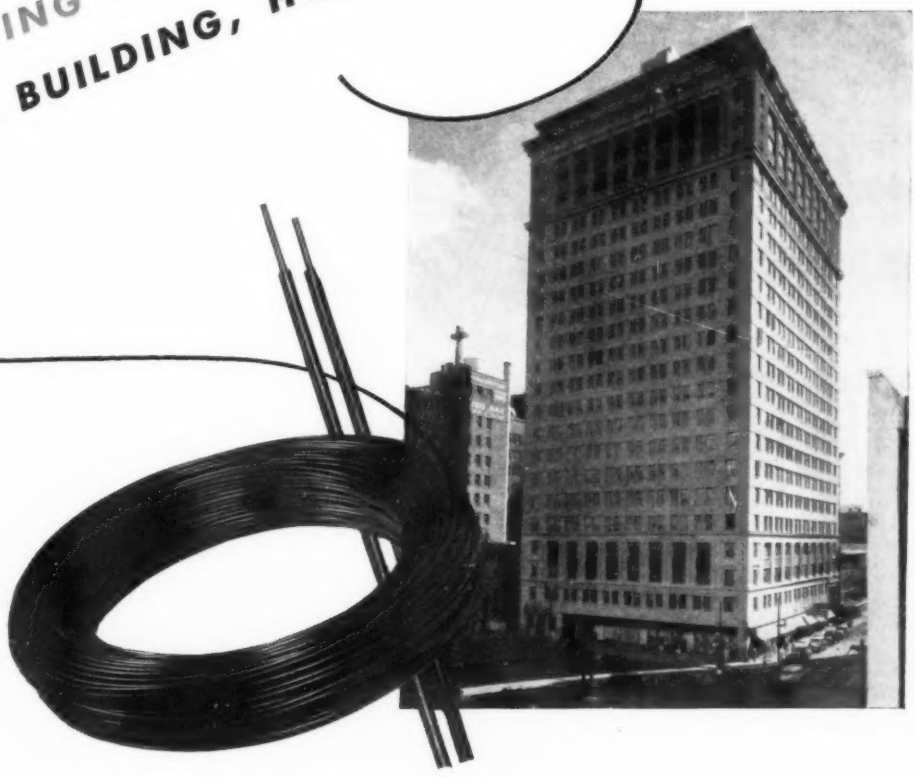
Isley had been residential and commercial sales manager since 1935 and prior to that time had served as an appliance salesman in addition to holding other posts. In his new position he is in general charge of all sales.

Other promotions included the following: C. N. Rackliffe, former manager of industrial sales, to assistant to Vice President Vecker; W. Paul Lyman named manager of industrial sales; T. B. Smiley appointed manager of domestic sales; and M. H. Hicks to manager of commercial sales.

New Advertising Director For New Orleans Public Service

W. J. Amoss, manager of the industrial and commercial sales division for New Orleans Public Service Inc., recently has been named director of advertising for the utility to succeed the late Jay C. Barnes.

100,000 FEET OF FLAMENOL* BUILDING WIRE USED TO REWIRE SHELL BUILDING, HOUSTON, TEXAS



"ENTHUSIASTIC OVER SAVINGS" — SAYS BUILDING OWNER "EASY TO INSTALL" — SAYS ELECTRICAL CONTRACTOR

The 14 upper floors of the Shell Building, Houston, Texas, have been rewired with Flamenol Small Diameter Building Wire to provide for increased illumination. The Shell Building is comparatively new. When it was opened 14 years ago its wiring was completely adequate according to the standards of that day. But today's lighting requires heavier wiring.

Consequently, the owners of the building, the New England Mutual Life Insurance Co., of Boston, Mass. wanted the wiring improved. They called upon the Jacobe Bros. Electric Co. to devise a satisfactory and economical way to bring the wiring abreast of the times. Jacobe Bros., incidentally, wired the building originally.

To solve the present problem, approximately 100,000 feet of No; 12 Flamenol Building Wire were used to replace the existing wires in existing branch circuit raceways. New risers were installed using five tons of G-E White Conduit and G-E Code Grade Building Wire. G-E Performance Grade Wire was used for main elevator feeders.

New Life for Old Buildings

Small Diameter Flamenol Building Wires enable wattages in existing buildings to be increased inexpensively. The present wires in existing conduits can be replaced with more wires or with wires of larger capacity. Flamenol Building Wire is available in sizes 14 to 4/0 inclusive. It is insulated with a plasticized polyvinyl chloride compound. This insulation is tough, flame retarding and is high in dielectric and mechanical strength.

For further information on Flamenol Building Wire and for samples, see the nearest G-E Merchandise Distributor or write to Section W-0210, Appliance and Merchandise Department, General Electric Company, Bridgeport, Conn.

*Reg. U.S. Pat. Off.

GENERAL ELECTRIC

Honor Roll of Southern Section

The following members of the Southern Section, International Association of Electrical Inspectors, have enrolled one or more new members for the association since the current membership campaign was initiated at the close of the annual meeting, September 14. Numbers at right indicate number of new members enrolled by each individual.

Bommer, A. J.—Dallas, Texas	3
Camus, Frank—Shreveport, La.	4
Edwards, Virge—Lyon, Miss.	15
Fisher, J. G.—Jackson, Miss.	3
Fletcher, G. R.—Alexandria, Va.	1
Goodson, Fred—Houston, Texas	2
Hancock, A. E.—Austin, Texas	1
Hendricks, R. B.—San Antonio, Texas	3
Jones, C. T.—Atlanta, Ga.	1
Kersey, T. M.—Dallas, Texas	1
McKinney, E. W.—New Orleans, La.	2
Muller, Paul—New Orleans, La.	1
Sagendorf, F. P.—Fairfax, Va.	1
Segall, B. Z.—New Orleans, La.	2
Sprouse, J. B.—Clarksdale, Miss.	7
Stewart, W. B.—San Antonio, Tex.	1
Weber, Chas.—Beaumont, Tex.	1
Welman, George—New Orleans, La.	1
Whitner, Jos.—Atlanta, Ga.	2
Total	52

Top Westinghouse Executives Study South's Business

Nine top officials of the Westinghouse Electric & Manufacturing Company have just completed a trip through the South, to complete an "on the spot" economic survey. During the five-day tour, the Westinghouse executives visited industrial, educational, and power developments in Tennessee, Alabama, Georgia and Virginia. Focal points for these first-hand studies were Knoxville, Tenn.; Birmingham, Ala.; Atlanta, Ga., and Richmond and Newport News, Va.

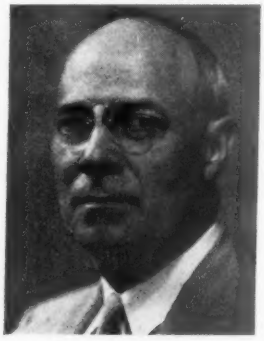
Thomas Fuller, left, southeastern district manager for Westinghouse, confers with Westinghouse executives during their visit in Atlanta: A. W. Robertson, chairman of the board, right, and C. H. Bucher, president.

Purpose of the tour, according to A. W. Robertson, Westinghouse chairman and head of the group, is to "view at first hand the functioning of industry, agriculture and education in sustaining normal peacetime production while implementing the Government's preparedness program."

Besides Mr. Robertson, the executive group included George H. Bucher, president; Ralph Kelly, vice president in charge of sales; Marvin W. Smith, vice president in charge of engineering; L. W. Lyons, treasurer; G. E. Pendray, assistant to the president; A. H. Phelps, general manager of purchases and traffic; Bonnell W. Clark, president of the Westinghouse Electric Supply Company; and Harry F. Boe, manager of the Westinghouse service department.

Death Claims Well-Known Advertising Executive

John Paul Lucas, advertising and merchandising manager for Duke Power Company, Charlotte, N. C., died at his home on September 28, after a long illness. Mr. Lucas had been associated with the Duke company and its predecessor companies for more than twenty years. He was active in public relations work and had been a vice president of the Southern Public Utilities Co., predecessor company of Duke Power Company.



John Paul Lucas

Before entering the public utility field he had extensive experience in newspaper work. He was elected president of the North Carolina Farmers convention in 1916, serving until 1917, and subsequently was appointed executive secretary of the North Carolina State Food Conservation Commission, still later becoming executive assistant state food administrator under the U. S. Food Administration. He was active in extending rural electrification throughout the territory in which the Duke Power Co. operates and traveled extensively throughout the state, addressing farmers' groups and others on the subject of agricultural advancement and rural development.

Executives and employees of the Walker Electrical Co., of Atlanta, gathered recently to express "good wishes" to two employees of the company, V. H. Branham and C. W. Strong, who severed connections with the firm to accept new positions.

Front row, left to right: H. L. Sudderth, R. M. Walker, *C. W. Strong*, Mrs. C. W. Strong, Mrs. V. H. Branham, *V. H. Branham*, K. D. White, D. A. Smith. Second row, left to right: Morris Landers, (with whom Mr. Branham is now associated), Mrs. Mary Camp, Rebecca Head, Kay Tabor, Mrs. Mary Kimble, Jean Mitchell, Clarice McGraw, A. H. Erwin. Third row, left to right: K. C. Bradford, J. T. Fisher, R. D. Hale, G. W. Beggs, J. F. Maier, S. H. Crowe, H. A. Adams, G. P. Alexander.

Distributors Appointed

The Mid-State Electrical Supply Co., Inc., Lynchburg, Va., has been appointed a distributor for General Electric wiring materials, insulating materials, and G-E Deltabeston wires and cables, and will continue

Quick Profits

● Dealers who feature these Arvin Circulating Heaters will make quick profits this Fall and Winter. Sales increased 65% last year. With more than twice as much consumer advertising, these Arvin Heaters will sell faster this year. So don't miss the early sales—order from your Arvin jobber now. Three efficient models, beautifully designed and finished. Attractive low prices.

STANDARD MODEL 101
Two-tone green enamel finish. Chrome grille. Convenient carrying handle recessed in back of case. Size—10" high, 9¾" by 6⅛" at base. Weight 7¾ lbs. . . . **$6.95 LIST**

DELUXE MODEL 201
Tan and brown morocco finish. Chromium grille. Toe switch and glow light are exclusive deluxe features. Size—11¾" high, 10⅞" by 6⅜" at base. Weight 9¾ lbs. . . . . **$8.95 LIST**

DELUXE MODEL 201A
(Illustrated on counter card) Same as model 201 except for finish. Ivory and maroon. **$9.95 LIST**

● All models operate on AC only, 50 to 60 cycles, 110 to 125 volts. Heating element, nichrome helical coil with molded porcelain supports. Motor, induction type — does not interfere with radio. Fan, 2-blade propellor type. Housing heavy gauge steel with rubber feet.

NOBLITT-SPARKS INDUSTRIES, INC. • COLUMBUS, INDIANA

List Prices 55c Higher Denver and West—Also in Extreme South

THIS COUNTER WINDOW CARD AND 18 MILLION ARVIN AD SALESMEN HELP YOU SELL

Appearing in October, November and December issues of the magazines shown above, more than 18 million Arvin "Ad Salesmen" will contact your many prospects—paving the way for you to sell Arvin Circulating Heaters, easily and quickly.

Attractive counter-window card, reproduced in miniature at right, is another sales help, FREE to dealers. It is lithographed in three colors (red, yellow and black) and helps you to cash in on the consumer campaign. Size of card, 16" wide and 20" high. Ask your jobber for it—also a supply of FREE folders to mail with your monthly statements.

ARVIN
ELECTRIC FAN-FORCED
Circulating Heater
Just what you need
FOR: Bathrooms . Nurseries . Dens
Guest-rooms . Game-rooms . Sun-rooms
Trailers and Camp Cottages
Invalids' Rooms in Homes or Hospitals
Small Offices and Ticket Booths
Hair and Clothes Drying . Bath Houses
Photographers' Drying Rooms
For Baby's Bath and other uses where extra or temporary heat is needed.
Warms Air Completely—drawing in cold air from floor, heating it and lets-herding it into room.
Circulates Heat—employing efficient fan-distributing principle used in modern home heating systems.
Gives Immediate Heat—for bathing, shaving and dressing, when furnace fire is low or room is chilly.
Portable—easily carried from one room to another to drive chill away. Plugs into any 110-A.C. wall outlet.
Safe with Children—because heating element and fan are enclosed. Won't burn rug, if upset accidentally.
Efficient and Economical—with air-intake louvers and quiet-running fan behind heating element, to drive heat all ways and out into room.
Approved by Underwriters' Laboratories and Good Housekeeping Institute
GUARANTEED AS ADVERTISED IN GOOD HOUSEKEEPING
PLUGS IN ANY 110-A. C. WALL OUTLET
FAN FORCED HEAT
The Deluxe MODEL 201A

to handle G-E electric clocks and heating devices, as in the past.

The Graves Electric Supply Co., of Greenville, S. C., which has been a distributor for G-E automotive products, Deltabeston wires and cables, insulating materials, and wiring materials, has also been appointed a distributor for electric clocks and heating devices.

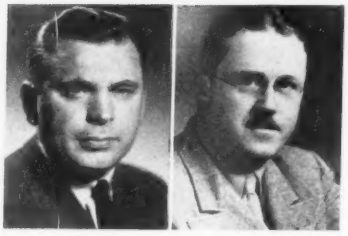
* * *

Appointment of additional new distributors for Airtemp Cool Breeze air conditioners has just been announced by B. S. Williams, sales manager of cooling for the Airtemp Division of Chrysler Corp.

The firms added to the Airtemp list are Steve Wise Company, Wichita, Kansas, for most of Kansas and part of Olkahoma; and Hales-Mullaly, Inc., Oklahoma City, Okla., for most of Oklahoma and the northwestern part of Texas.

Personnel Changes Announced by Graybar

Effective October 1, Douglas Wallace, district manager for Graybar Electric Co., at Jacksonville since 1938, became assistant general sales manager, reporting to D. H. O'Brien, general sales manager. He will make his headquarters at the Graybar general offices, New York City. Mr. Wallace came with the company in 1922 as assistant accountant at Seattle. Within six years he was made a senior accountant and the following year became assistant secretary as well. In 1934 he became assistant general merchandising manager, and in 1938 he went to Jacksonville as district manager.



D. Wallace L. G. Fields

L. G. Fields, manager at Miami since 1937, has been transferred to Jacksonville to succeed Mr. Wallace. A Georgian by birth and a graduate of the University of Georgia, he started his career with Graybar in 1924 at the Atlanta house. Within two months he was transferred to the service department, and before the year was out became a salesman at Jacksonville. The next year he was transferred to Tampa, and three years later, in 1928, was put in charge of the Miami house. In 1929, he was given the title of sales manager and in 1937 became manager.

New Electrical Products

New Frigidaire Range

A new popular priced deluxe electric range, with a recommended Zone A retail selling price of $142.75, is announced by the Frigidaire Division. General Motors Sales Corporation, with the introduction of range model B-35. A new improvement in this model is an oven light. Important basic features are those also

found in other Frigidaire electric range models. The B-35 has a full size twin-unit oven, high-speed broiler, "Thermizer" cooker with heat control switch, surface units with five cooking speeds, signal lights for oven and top units, time signal, hydraulic type oven heat control, three storage drawers and one-piece porcelain cabinet and cooking top.

K-M Counter Display Stand

Three to seven Knapp-Monarch electrical appliances for the home — selected from the forty-five that bear the K-M name — may be arranged on this attractive new four-color K-M window or counter display. Silk-screened in ivory, fire red, light blue and dark blue, it is

GREENLEE Hydraulic Benders
Can Save You 15 to 75% On Bending Costs

NO. 770
HYDRAULIC BENDER

NO. 770-BB
BUS BAR BENDER

The powerful Hydraulic Units on Greenlee Benders make the job of bending conduit and pipe so easy that one man can quickly develop the pressure needed to bend any conduit from 1¼ to 4½ inches. You can save enough on labor costs alone to more than pay for the bender. Many users have said that Greenlee Benders have lowered labor and material costs anywhere from 15 to 75%. The No. 770 Bender with a maximum pressure of 25 tons will handle conduit from 1¼ to 3 inches while the large No. 775 with a maximum pressure of 40 tons can bend 3 to 4½-inch conduit. The new Hydraulic Bus-Bar Bender will bend bus bars up to 4" wide and ¾" thick, and make U-bends with a minimum inside width of 3½ inches. Write for more detailed information about the complete line of Greenlee Benders and attachments.

GREENLEE TOOL CO., 1707 Columbia Ave., ROCKFORD, ILL

substantially built of ½ inch display board with a wood base. Attention-getting windows are easily and quickly made by using this large display unit in combination with individual K-M appliance displays. The display is free with an order of K-M appliances.

Hotpoint Ironer Visualizer

The most recent addition to Hotpoint Home Laundry promotional material is the new Hotpoint Ironer Visualizer, just announced by H. E. Warren, manager, Hotpoint Home Laundry Division.

The new visualizer combines the functions of attractive display and "use value" information. It is made to fit the top of the ironer, and, when not in use, forms a colorful display piece.

When the prospect enters the store, the retail salesman seats her at the ironer on which the Visualizer rests. As he explains the features and advantages of the ironer, he opens the Visualizer, piece by piece. Each section points out and amplifies the feature being discussed, lending drama and color to the straight sales story. When the Visualizer is entirely open, every Hotpoint ironer feature is located and fully explained for the prospect, who has remained comfortably seated throughout the entire presentation. It is only a matter of seconds to re-close the Visualizer, remove it, and open the ironer for an actual demonstration.

Where desired, the Visualizer can be used, completely open, on a Hotpoint ironer in the retailer's window, to add interest and information to his Washer-Ironer week window display.

Static-Proof "V" Belt

What it believes to be the first V-belt ever manufactured which prevents accumulation of static, and retains its static-discharging qualities during its entire service life is announced by The B. F. Goodrich Company, Akron, Ohio. The belt will be sold, for the present, only to machine or equipment makers.

The company points out that this striking development in V-belt construction is of greatest interest and importance to manufacturers and users of washing machines and other machinery where static discharges might create a fire hazard.

RUBBER COVERED POWER CABLES · BUILDING WIRE
ARMORED CABLE · FLEXIBLE CORDS · LEAD-ENCASED AND PARKWAY CABLES · VARNISHED CAMBRIC
CRESFLEX NON-METALLIC SHEATHED CABLE · SERVICE ENTRANCE CABLE · MAGNET WIRE · BARE WIRE

CRESCENT IMPERVEX

Moisture Resistant Rubber Insulated Building Wire

It is made especially for use in damp locations in place of lead encased cable and is approved by Nat'l Elec. Code and Und. Lab. for such use.

Due to its smaller overall diameter and easier working characteristics, more wires of the same size or the same number of wires of larger capacity may be used in new wiring or rewiring existing conduits.

For more than seven years, IMPERVEX underground cables have been giving completely trouble-free service wherever installed, including the principal utility systems.

Send for Bulletin on CRESCENT IMPERVEX

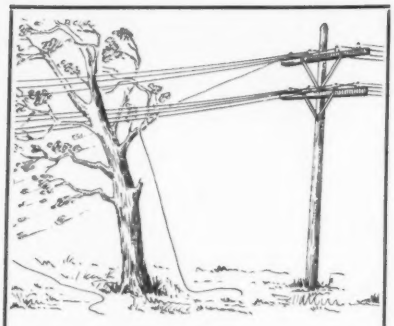
CRESCENT INSULATED WIRE & CABLE CO. INC
TRENTON, NEW JERSEY

SOUTHERN REPRESENTATIVES

ATLANTA, GA.
Edgar E. Dawes
A-4 Rhodes Bldg. Annex

NEW ORLEANS, LA.
Paul Hogan, Jr.
823 Perdido St.

CRESCENT ENDURITE SUPER-AGING INSULATION



BLITZKREIG
by wind against
TREES
wrecks havoc with
LINES——

"Making you wish that you had your wires cleared of swaying branches that cause so much trouble to the smooth flow of electric current for light, power and communications. Our organization with its staff of tree experts is at your service to help you solve your line clearance problems economically. One of our several types of contract will serve your individual needs. For full details, write or phone the Asplundh Tree Expert Company, Jenkintown, Penna., Ogontz 3750."

Branch Offices:
Chicago, Illinois Randolph 7773
Binghamton, N. Y. Binghamton 4-5314
Columbus, Ohio Adams 5432
Washington, D. C. Shepherd 6115
Baltimore, Md. Plaza 7656
Alexandria, Va. Alexandria 3581
Pittsburgh, Pa. Atlantic 9798
New Castle, Pa. New Castle 2285
Rutherford, N. J. Rutherford 2-7434

ASPLUNDH
TREE EXPERT
COMPANY
Line Clearance Exclusively

"Porto-Power" Hydraulic Device

A number of new developments are appearing in the line of Porto-Power hydraulic equipment recently introduced by the Blackhawk Mfg. Co. for pushing, pulling, clamping, pressing, bending and spreading operations.

Maintenance men as a rule have accepted the 10-ton Porto-Power pump, ram and hose hydraulic unit, with attachments, for the general run of work. However, the 10-ton capacity and size of this ram did not fully cover the range of maintenance or production jobs requiring small-size or more powerful rams. These rams have been available before—but it was always necessary to purchase a pump and hose for each ram.

A "Spee-D-Coupler" now makes it possible to connect the same pump and hose to any one of the Porto-Power rams, in 4, 7, 10, 20 or 50-ton capacity. This coupler, which joins the high-pressure hose to the ram, seals an oil channel that transmits 10,000 pounds per square inch oil pressure. Yet it can be disconnected or connected with a finger-twirl for change-over to other rams.

Another Porto-Power development is a "thimble-size" 4-ton ram which is only 1⅝" in height and diameter.

Speedy Construction For Defense Power Projects

(*Continued from page* 37)

pared immediately and requisition drawn on the central warehouse at Lawton for the necessary material. A portion of the regular construction crew had been withdrawn from other work, and by noon Tuesday, sufficient material had been delivered to the location of the station for the construction crew to start work.

The station, as built, is of the two pole type, with gang operated switch and liquid type fuses on the incoming high voltage line. Lightning arresters were installed on both the 2300 volt and the 13,200 volt lines. Metering equipment installed is of the conventional type, using 2300 volt indoor type current and potential transformers mounted on a weatherproof metal box, and a recording demand watthour meter, also mounted in a weatherproof metal box.

Three transformers, each rated 325 kva, 13,200/2300 volts, were installed, but only two connected. All material and equipment was supplied by the Lawton central warehouse.

Since a large portion of the personnel of the new regiment was living in quarters without electric service when the request for the substation was made, it will be evident that speed in completion of the substation was desired, and al-

Statement of Ownership

Statement of ownership, management, circulation, etc., required by the Act of Congress of Aug. 24, 1912, and March 3, 1933, of Electrical South, published monthly at Marietta, for October 1, 1940.

State of Georgia, County of Fulton.

Before me, a Notary Public in and for the State and County aforesaid, personally appeared J. C. Martin, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the Electrical South, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication, for the date shown in the above caption required by the Act of August 24, 1912, as amended by Act of March 3, 1933, embodied in Section 537, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor and business manager are:
Publisher, W. R. C. Smith Publishing Co., Atlanta, Ga.
Editor, Carl W. Evans, Atlanta, Ga.
Business Manager, J. C. Martin, Atlanta, Ga.

2. That the owners are:
W. R. C. Smith Publishing Co., Atlanta, Ga.; W. R. C. Smith, Atlanta, Ga.; J. C. Martin, Atlanta, Ga.; O. A. Sharpless, Atlanta, Ga.; T. W. McAllister, Atlanta, Ga.; W. J. Rooke, Atlanta, Ga.; W. S. Cushion, Cleveland, Ohio; E. W. O'Brien, Atlanta, Ga.; J. C. Cook, Atlanta, Ga.; R. P. Smith, Atlanta, Ga.; and E. L. Philpot, Atlanta, Ga.

3. That the known bondholders, mortgagees and other security holders, owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security company but also in cases where the stockholders or security holders appear upon the books of the company as trustees or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company, as trustee hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest, direct or indirect, in the said stock, bonds, or other securities than so stated by him.

J. C. MARTIN,
Business Manager.

Sworn to and subscribed before me this 11th day of October, 1940.

E. L. PHILPOT,
Notary Public at Large.

My commission expires Feb. 7, 1943.

though this type work is not regularly included in the routine program of the construction department, the station was built and placed in service by Wednesday evening. Actual elapsed working time was fifteen hours from the time construction started, and total expense of constructing and connecting the substation, including transportation expense was under sixty dollars.

Electrical Trademarks And Tradenames

Here are the complete firm names for the companies represented by the trademarks, tradenames and insignia shown on page 24:

1. Youngstown Pressed Steel Division of Mullins Mfg. Company
2. The Stanley & Patterson Division of Schwarze Electric Company
3. James R. Kearney Corporation
4. Kwikon Company
5. Anaconda Wire & Cable Company
6. Paine Company
7. Briegel Method Tool Co.
8. Hazard Insulated Wire Works, Division of Okonite Co.
9. F. W. Wakefield Brass Company
10. General Electric Company
11. Automatic Electric Manufacturing Company
12. Wiremold Company
13. All-Steel Equip. Company
14. Frank Adam Electric Company
15. Youngstown Sheet & Tube Company
16. Mello-Chime & Signal Company
17. Square D Company
18. Porcelain Products, Inc.
19. General Cable Corporation
20. Dongan Electric Mfg. Company
21. Automatic Electric Heater Company
22. Belson Manufacturing Company
23. Crescent Insulated Wire & Cable Company
24. National Electric Products Corp.
25. Bull Dog Electric Products Company
26. John I. Paulding, Inc.
27. Knox Porcelain Company
28. Ideal Commutator Dresser Company
29. Wiring Devices Section, General Electric Company
30. Hunter Fan and Ventilating Company
31. Aluminum Company of America
32. Walker Electrical Company
33. Curtis Lighting, Inc.
34. General Electric Supply Company
35. Ward Leonard Electric Company
36. American Coolair Corp.
37. Edison General Electric Appliance Company
38. Overbaugh & Ayers Mfg. Company
39. Asplundh Tree Expert Company
40. Killark Electric Mfg. Company
41. Walker Brothers
42. Noma Electric Corp.
43. John C. Dolph Company
44. Glass Coffee Brewer Corp.
45. Hubbard and Company
46. Frederick Iron & Steel Company
47. McGill Manufacturing Company
48. Edwin L. Wiegand Company
49. Noblitt-Sparks Industries
50. Burndy Engineering Company
51. Pyle-National Company
52. National Transformer Corp.
53. Greenlee Tool Company
54. The Electric Heater Company
55. Landers, Frary & Clark
56. Signal Electric Manufacturing Company
57. Frigidaire Corporation
58. American Steel & Wire Division, U. S. Steel Co.
59. The Lloyd Products Company
60. Burnham Boiler Corporation
61. Norge Division, Borg-Warner Corporation
62. The Silex Company
63. Sangamo Electric Company
64. Kelvinator Corporation
65. Westinghouse Electric & Manufacturing Company
66. Graybar Electric Company
67. Thermador Electrical Manufacturing Company

Arc Welding Used in Building Construction

(*Continued from page* 23)

tion rock wool is forced by air to a density of 10 lbs. per cubic foot.

These panel sections are 6 inches thick for house construction and 18 inches thick in factory and other structures.

In construction of houses and smaller structures these panels are erected individually. However, in the factory building there was sufficient area of concrete floor to allow assembly of panel sections 23 ft. square and complete welding of each section in flat position before erection. These sections were then hoisted in place and welded.

Accessory Sales Help Motor Shop Volume

(*Continued from page* 22)

be sold, without any particular extra addition to your force, by educating your service men to be salesmen, to observe the needs of the prospect and present him an intelligent solution for his problems. In other words, to be his "Electrical Consultant."

Read your trade magazines regularly; note the new items and become thoroughly acquainted with them thus being able to intelligently discuss the merits of new equipment as compared with what has been in use for "in knowledge there is power."

In conclusion let me suggest one more thing. You cannot build up volume by giving away the use of your equipment. It costs money and is your stock in trade. I refer

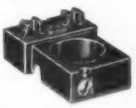
Lloyd Leads

in Fluorescent

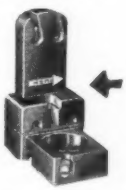
Lamp Holders
Starter Sockets
Starter Switches

Patent Pending

Cat. 252
NEW LLOYD STARTER SOCKET



with dual spring action feature for POSITIVE contact and lock. Exclusive Lloyd feature.

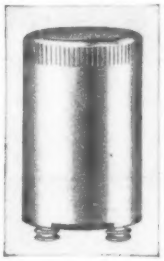


Cat. 253—Black
Cat. 253W—White
Lloyd Lampholder with Lloyd Starter Socket

NEW LLOYD LAMP HOLDER

1. Easy to Install
2. Lamp held securely locked — in positive contact
3. Easy to remove lamp

Cat. 251 Black
Cat. 251W White



FS-2 or FS-4
Pat. Pending
THE NEW LLOYD STARTER
For Quicker Starts and Longer Life

All items approved and listed by Underwriters' Laboratories

Certified by Electrical Testing Laboratories—specification 6

Lloyd Products Company
P. O. Box 126, Edgewood Station, Providence, R. I.

SOUTHERN REPRESENTATIVES

S. L. BAGBY CO.
606 No. Mint St., Atlanta, Ga.

GEORGE E. ANDERSON CO.
Santa Fe Bldg., Dallas, Texas

E. B. HENDERSON
710 No. 12th Boulevard, St. Louis, Mo.

Sales Representatives in 14 Other Principal Cities

particularly to giving the use of a motor while one is being repaired: *Rent them.* It costs money to get a motor out, test and deliver it. Further, the motor depreciates and wears out so why not charge for its use? If you don't you will turn up some day with these necessary tools worn out, and you will have nothing with which to work. There is not sufficient profit in repair work at prevailing prices to justify absorbing any extras.

Apprentice Training for The Industry's Needs

(*Continued from page* 21)

ity of common substances, melting or fusing points, cross section area of wire, voltage loss or drop along a wire, conduit sizes for different sizes and combinations of wire, study of materials, tools and fittings used, and underwriter's rules and requirements.

Drawing. Symbol of wiring plans, wiring diagrams, architectural drawing of house and floor plans.

Unit Three

Shop work. Wiring for power, exposed surface and concealed wiring, with conduit, flexible armored cable, flexible steel conduit; connecting wires to motors and controllers.

Related work. The following related topics will be covered during this unit: d-c motor and generator installation; defining the motor and generator, the field, action of the commutator and brushes, brush holders, mechanical details; shunt generators and motors, their uses; series generators and motors, their uses; compound generator and motors, their uses; types of controllers and their uses; a-c motor and generator installation; defining the motor and generator alternators, voltage, single and polyphase, regulation, synchronous motors, the single phase induction motor, single phase commutator motor, compensated series motors, repulsion motors, induction motors, starting squirrel cage motors, and motor frequency changes.

Drawing. Diagrams for wiring motors and generators, compensators, and control devices.

Unit Four

Pole work. Outside wiring, pole line construction and maintenance, digging holes, erecting poles, guying, installing cross arms and hardware, stringing conductors, dead end cross overs, rounding curves, oblique turns, head guying at street crossing and on steep hills, guying at road crossing with side guys and stub guys.

Related work. The following related topics will be covered during this unit: pole specifications, dimensions of pole, national safety code, the best wood to use for poles, preservation of poles, the size of poles to use, depth to set in ground and spacing of poles.

Unit Five

Shop work. Direct current machinery: magnet, armature and field winding and repairs; winding coils, baking coils, taping coils, installing coils and connecting lead wires to commutator; assembling motors, testing for efficiency, testing speed, and testing horse power.

Related work. The following related topics will be covered during this unit: magnet and motor winding, winding calculations, electromagnet induction, amount of e.m.f. produced, quantitive relation between quantity and current, potential, differences of potential, magnetic field of current, mechanical forces on conductors in magnetic field, the mechanical force acting on a current-carrying wire placed in a magnetic field, a coil wire in a magnetic field, and finding the direction of torque.

Drawing. Motor diagrams and winding diagrams.

Unit Six

Shop work. Alternating current machinery: magnet, armature and field winding and repairs.

Related work. The following related topics will be covered during this unit: difference between direct and alternating current: frequency; alternations; wave shape; distortion; average effective and maximum values; form factor; phase displacement; self-induction and inductive reactance; condensers; measuring capacitance; independance; triangle valves, power factor; wattless component of power; polyphase circuits; three phase systems; the transformer; auto transformer; single and polyphase transformers; delta and Y connections; single current transformers; Scott tap; cooling transformers; losses, efficiency.

Drawing. Motor diagrams, winding diagrams, transformer design and connecting diagrams.

Unit Seven

Shop work. Plant maintenance: testing; trouble shooting; repairs on electrical equipment; meter testing and repairing; building equipment, such as, transformers, battery charger, test growlers, switch boards and panel work.

Related work. Related topics covered during this unit will directly relate to the type of work covered.

Drawing. Designing equipment to be built during this unit.

Other Related Work

The following subjects will be required in connection with this course: English, mathematics, economics, industrial hygiene, industrial history, science, bookkeeping, business law, and drawing.

During the two-year course a series of inspection trips to all industrial plants of the city will be made.

THE WHOLE STORY IN A NUT SHELL

Ward Leonard Rheostats cover a range from the small types for fractional horsepower motors to the largest multiple units to control the heavy current requirements of rolling mills. The Bulletins covering the types, drives, mountings and accessories of the Ward Leonard Line is the whole story of Rheostats "complete in a nutshell".

Send for Rheostat data bulletins.

Southern Representatives:

Mr. John S. Clark
1100 E. Missouri St.
P. O. Box 143, Station A
El Paso, Texas

C. B. Rogers
Zahner Building
1000 Peachtree St., N. E.
Atlanta, Ga.

Brance-Krachy Co.,
4411 Navigation Blvd.
Houston, Texas

Electron Engineering Co.
1811 Masonic Temple Bldg.
New Orleans, La.

WARD LEONARD

37 SOUTH STREET MOUNT VERNON, N. Y.

ELECTRIC CONTROL DEVICES SINCE 1892

Promoting Small Appliance Sales

(*Continued from pg.* 11) position, arrangement and lighting. No electrical dealer should need any selling on the latter point. And interior display is just as important as show-window presentation.

"Every electrical appliance dealer, who operates as a going concern, *has to have some store traffic.* He should make the most of it by spotting his display of toaster sets and other small appliances as close as possible to the store's main entrance. Among the many people interested in small appliances, he will find a substantial number who are prospects as well for major equipment.

"A necessary prerequisite to efficient demonstration is a thorough knowledge of the appliance to be demonstrated. Usually nothing 'kills' a sale more quickly than inept handling of an appliance by a sales person unfamiliar with its operation. Large stores insure themselves against this sales hazard by systematic training of selling personnel. This type of insurance is equally available to any electrical dealer.

"The wholesaler's merchandise men will be only too glad to cooperate in familiarizing dealer's sales people with the items the wholesaler handles. Manufacturer's literature, too, can be a great deal of help in this connection.

"Selling technique is a subject that embraces such a wide field that it hardly can be covered in a few words but here are some ideas which I have found helpful. In first contacting a prospective customer, ask a routine question requiring an affirmative answer. Suppose the customer is tentatively fingering a de luxe toaster set. Ask, "Isn't it good-looking?" The only possible reply is 'Yes.' The customer agrees with you and so you have started the conversation in a friendly informal manner. The initial barrier between buyer and seller is down.

"Next ask a few questions to which the 'prospect' usually will not object. These should develop the use for which the appliance is intended—whether it is being considered for personal use or as a gift—the scope of the entertaining done by the buyer or the recipient, the size of the family it must serve.

"If asked in an easy, conversational manner, the customers generally will regard such questions as an indication of helpful interest on the part of the sales person. The answers chart the latter's selling course. It then will be easy to slant the sales talk and demonstration to highlight the use-values which best fit into the needs of the purchaser or the person to whom the appliance is to be given.

"And do not forget that there are other gift days besides Christmas. Consistent promotion of toaster sets and other table appliances ring up sales on these items as anniversary remembrance tokens and wedding gifts."

Blackboard Records Show Sales Data

(*Continued from page* 19)

within two weeks after its close, and the bonuses were payable at that time.

How Salesmen Work

All of the domestic salesmen have been with the company for several years, around three years or longer. Each salesman comes by the office first thing in the morning to check up on calls, deliveries, etc., and then must come by the office one time later in the day. However, the owners of the business do not feel it necessary to closely supervise their men's work, which is left largely up to the individual salesman.

They work the entire city of New Orleans but are not protected in any certain territory. Protected territories do not work out, Mr. Radford said, as the men work a good deal by instinct and it is sometimes unfair to them to limit or restrict their work.

A sales meeting is held each Saturday morning. Each man has one day a week on the floor. A book record is kept of every prospect who comes into the store, also every telephone inquiry received. Then two days later Mr. Radford checks over these calls with the salesman who was on duty, discarding those not considered worth while prospects.

Normally a man's prospects are held thirty days for him. Most sales are closed within the first

Look at the PLUS VALUES in the NEW BRIEGEL METHOD CONNECTOR

Constructed From Fine Sheet Steel . . . making stronger, neater and more durable connections than ever. Impossible to split the tube end because of inbuilt tensile strength of the sheet steel.

Larger Shoulder . . . completely closing the knockout hole in the box.

New, Improved Bonding-Type Lock Nut.

No Open Seam . . . Lap seam construction makes all connections smooth and finished.

NO INCREASE OVER PRESENT LOW PRICES.

Patents Pending
Approved by Underwriters Laboratories

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Clifton Conduit Co., Jersey City, N. J.
The Steelduct Co., Youngstown, Ohio
National Enameling & Mfg. Co., Pittsburgh, Pa.
Clayton Mark & Co., Evanston, Ill.
General Electric Co., Bridgeport Conn.
Enameled Metals Co., Pittsburgh, Pa.
Triangle Conduit & Cable Co., Elmhurst, New York City

BRIEGEL METHOD TOOL CO., Galva, Illinois

Say
MERRY CHRISTMAS
***and* HAPPY NEW YEAR**
With Autopoint Business Gifts!

Autopoint
BUSINESS GIFTS CREATE GOOD WILL
Lead to More Sales

● Imprinted Autopoint gifts stay on recipients' desks year after year to remind them of you and your big sales points. Find out how to do a daily job of selling by "remote control" — Build sales, good will with Autopoint pencils, pencil-and-knife gift sets, memo cases, and many others. Write for catalog and tested methods used by thousands of firms using Autopoint business gifts . . . in free book, "37 Sales Plans."

No. 52GS—Autopoint Pencil. Gold filled trim, inlaid crown on cap and tip. Famous Grip-Tite Tip—lead can't wobble, twist, fall out. Made of BAKELITE molding material. Available for standard or Real Thin Lead.

No. 183—Pen Knife—black handle, medium sized pen knife with fine quality high carbon cutlery steel blades.

No. 157—Daily Date Calendar—smartly streamlined. Pad always level with top, . . . eliminates "empty" appearance. "V-slotted" calendar sheets are easily pulled out—no unsightly stubs. Case made of BAKELITE molding material, Walnut color.

Autopoint
THE BETTER PENCIL
REG. TRADE MARK

AUTOPOINT COMPANY
1820 Foster Avenue, Chicago, Ill.

three calls, Mr. Radford said, and it is usually considered wasted time to spend more than that on one person, as the salesman will do better to look for more promising material.

Any trade taken in becomes the salesman's property; this makes for good traders. However, there are some exceptions to this rule in the case of electric refrigerators. If an electric box is of fairly late model, usually the firm works out a plan whereby it is taken over and handled by the firm rather than by the salesman.

The men are paid on a commission basis, but have a drawing account. The commission varies according to amount of discount the firm receives on a particular product.

Bonuses are paid occasionally, based on volume. Quotas are set, such as described above, and bonuses are paid the men according to individual sales, provided total amount of business written reaches the quota. Quotas are set low enough so that they are fairly easy to reach, but are arranged so that the more volume the firm does, the more bonus for each man.

Are There Too Many Appliance Models?

(*Continued from page* 18)

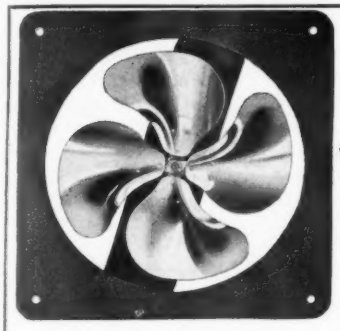
Analysis of the conversations that women had with McCall investigators discloses that while homemakers, prior to their purchase of refrigerators, electric ranges and washers, usually have definite ideas as to the brand or make of appliance they want to buy, only in a negligible number of cases do the women have a definite idea as to the size or model of the appliance they want, relying on the help of the dealer or retail salesman in their selection.

Having no preconceived ideas on the debatable subject of the number of sizes and models of appliances, McCall investigators were most anxious to get unbiased reports from consumers. Rather than in any way run the danger of influencing women's statements, the investigators asked women to recall the procedure which was followed in buying the refrigerator, range or washing machine that was found in the home. Women were asked which stores they visited prior to purchase of the appliance, when these visits were made, what happened in each store during their visit, how many models and sizes were inspected, etc. In other words, the woman was asked to reproduce as accurately as she could her whole buying or shopping experience. Later, by discussing the appliance which she had bought and by discussing a possible replacement purchase, the McCall investigators were able to secure from each homemaker some idea of the sizes and models of appliances that were felt would meet each family's needs and wants.

McCall investigators, acting purely as reporters in their calls on the appliance trade, state that dealers gave the following reasons for a reduction in the number of sizes and models of the three appliances: customers definitely favor a few models and sizes; the present number of sizes and models is confusing to customers and prospects; lower selling costs would result from a reduced line; generally decreased overhead would result; a smaller investment on the dealer's part would be required; more frequent turn-over in investment and stock could be accomplished; the dealer claims he could compete more successfully with the chain and mail order stores; a complete display of the line would be possible with smaller floor space; decreased service department expenses would result; there would be less obsolescence; and the whole line could be displayed with less risk of the appliances becoming shop-worn.

In the case of electric ranges, many dealers claimed that with fewer models they would be in a position to compete more successfully against the gas range. In the case of washer dealers, many of them made the point that a large number of models in a washer line apparently was not a positive force in promoting a sale, calling attention to the fact that one automatic washer manufacturer has only three models in his line.

Refrigerator dealers, for the most part, suggest that the 4, 6 and 8 cubic foot refrigerators be made available in both "standard" and "de luxe" models, resulting in six models in all. Of the dealers who did not vote for this assortment, only two variations were mentioned with any degree of frequency. The one suggestion was that the 4 cubic-foot size be made available only in the "standard" model, that the 6 cubic-foot size be produced in both a "standard" and a "de luxe" model and that the 8 foot box be supplied in only the "de luxe" model. The



SIGNAL 16-INCH VENTILATOR FAN

$16.50 LIST

MADE IN 3 SIZES

SIZE	NO.	C.F.M.	LIST
10″	V-510	650	$ 9.80
12″	V-512	900	12.50
16″	V-516	1400	16.50

These SIGNAL Ventilator Fans have enclosed motors, chrome plated fan blades and are easy to install. Display stand given free with initial order of three fans. Order now from your jobber.

SIGNAL ELECTRIC MFG. CO.

MENOMINEE, MICHIGAN

SIGNAL

Branch Offices:
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357-59 Marietta St., Atlanta, Ga.
Geo. E. Anderson
Sante Fe Bldg., Dallas, Texas

THE NEW MODEL 120 Automatic Time Switch

For turning signs, window lights, lighted billboards, and so on, ON and OFF automatically. Will handle loads up to 2200 watts. Easy to install and simple to operate. Load can be turned ON or OFF at times not called for by Time Switch. Self-starting electric motor will operate at temperatures down to 40 degrees below zero. New features, new compact size . . . New opportunities for your profit!

Write For Information and Discounts.

AUTOMATIC ELECTRIC MANUFACTURING CO.

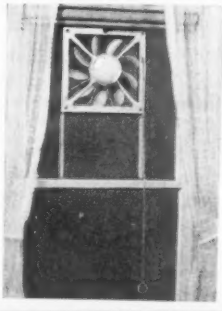
MANKATO • MINNESOTA

20 AMPERES . .
2200 WATTS . .

$12.00 !

Smart! Beautifully Finished!

Kitchen Ventilator



Gleaming in its white enamel and chrome plate, this attractive, efficient kitchen ventilator can bring you handsome profits winter and summer. Completely automatic, amazingly quiet, easy to install. Three wall models, two window models, 8 and 10 inch sizes, listing from $19.75. Write for full details.

Coolair Ventilating and Cooling Systems

AMERICAN COOLAIR CORPORATION

Manufacturers . . . . JACKSONVILLE, FLORIDA

YOUNGSTOWN PRESSED STEEL *Kitchens*

FOR the price of one good refrigerator, any housewife can have a modern Youngstown Pressed Steel kitchen.

For years, motion pictures, cooking schools, magazines, and food manufacturers, have been selling the housewife on the idea of modernizing her kitchen, but no one has sold her the kitchen. The market is wide open!

Because Youngstown Pressed Steel is the only manufacturer of steel kitchens as a complete unit, and because our kitchens, from the first operation to the finished product, are made in our own plant, Y.P.S. kitchens are low priced. Combine this low priced kitchen with the PROVEN SALES PLAN that we have for your disposal, and it spells Profit!

This is an opportunity unsurpassed even by the day when an ice card in the window meant a refrigerator prospect, so write to-day and let us tell you the Youngstown Profit Story, and how it can apply to you. Don't miss this chance to bring big business into your own back yard.

YOUNGSTOWN PRESSED STEEL DIVISION
Mullins Manufacturing Corporation, Warren, Ohio

PLEASE SEND ME COMPLETE INFORMATION ON THE *"Youngstown"* DEALER FRANCHISE FOR MY TERRITORY.

Name_____

Address_____

City_____ State_____

ES-1140

YOU CAN'T AFFORD TO STOP FIGHTING COSTS!

Your costs grow like weeds . . . you can't stop fighting them or they will choke the profit right out of every job. Take a tip—use modern profit saving *Ideal* tools and equipment. For instance:

IDEAL JOIST BORING MACHINE

For floor or overhead work. Ends tiresome and dangerous reaching and stooping. Fast, accurate. Merely adjust for distance, tighten set screw . . . strike bit into joist and pull on chain. Reaches up to 11 feet.

Wire-Nuts

Just strip wires—screw on—that's all ! No solder, no tape. You've never seen a neater joint ! Better electrically, stronger mechanically—positive contact insures increased conductivity. Joint will withstand up to 3½ times the pull of soldered joints. Save money on materials—handle more jobs. Fully approved. Millions in use!

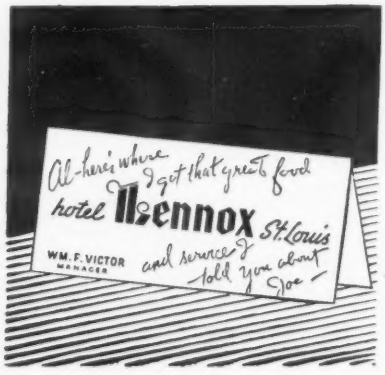
Free Samples on Request

IDEAL SOLD THROUGH JOBBERS

Electrical Products Division

IDEAL COMMUTATOR DRESSER COMPANY

1017 Park Avenue Sycamore, Illinois



You'll like the Lennox in St. Louis, too. Here in a handy downtown location, you'll find cheery, comfortable surroundings . . . sleep-inviting beds, famous food and drink . . . everything to make your stay pleasant.

All rooms have private bath and guest-controlled radio. Rates: 50% of all rooms $3.50 or less, single; $5.00 or less, double.

HOTEL Lennox

9th & Washington • St. Louis, Mo.

Nearby Parking and Garages

other suggestion was that the 4 foot box be made available only in the "standard" model, that in addition to a "standard" and a "de luxe" model, the 6 cubic-foot size be presented in a "special" and that the 8 cubic-foot size be represented by both a "standard" and a "de luxe" model. Many dealers stated that their own sales of four cubic-foot boxes were small but thought this size should be retained for other dealers who served apartment house or kitchenette families.

Acting upon the advice of appliance manufacturers that the problem of whether there were too many, too few, or just enough models and sizes of these three appliances had little, if anything, to do with geographical sections of the country or size of communities, no special effort was made in the McCall investigation to get a Gallup-poll cross section. Instead the McCall investigators called on 1,804 consumers and 147 appliance retailers in Albany, N. Y., Pittsfield, Mass., Hartford, Conn., Richmond, Va., Winston-Salem, N. C., Detroit, Mich., Cedar Rapids, Iowa and Richmond, Indiana in the period of January 2 to April 1, 1940.

While calls were made on high-income, middle-income and low-income families, fewer calls were made in low-income homes than in other surveys, since it was felt that in too many cases low-income families are forced to be governed largely by low-price in their appliance purchasing.

What Miami Is Doing Towards Adequate Wiring

(*Continued from page* 32)

the picture. When it was discovered by the owners or contractors that the delay was caused by the architect's negligence or failure to submit the proper wiring layout to the electrical inspection division, these owners and contractors called on the architect, leaving with him the idea that he must keep up with the rest of the architects if he expected to remain in the competitive field with those who complied with our requirements.

With this pressure from the entire electrical industry standing willing to help him; with the certificate of proficiency which hung on his wall; realizing that in a few short years the supervision architect who had visited the jobs during construction, and helped solve the many problems which arose from time to time, had been relegated completely from the small jobs as a supervising architect and had lost a great deal of prestige on the larger jobs, the tardy 40 percent joined with the 60 percent who had cooperated from the start.

The procedure of submitting and approving electrical plans before the building permit can be issued was put into effect about two years ago, and everyone with whom I have come in contact appears to be satisfied with the progress we have made. The electrical contractors and utility company have cooperated 100 per cent from the start. The building contractor and the architest are now cooperating 100 per cent.

Information Required

You may wonder by now what information is necessary to make electrical wiring layouts acceptable. The following information is necessary: The plans must be legibly drawn or printed to a definite scale, one floor plan being sufficient if made to show all the proposed work, and if not, two or more plans must be used. The plans must show total floor area, the square feet of the building under consideration, the point at which the service connection is made, the size of service and subfeeders required, the location of the service switches, and the center of distribution, the arrangement of circuits, and the number of outlets connected thereto.

The plans must be approved or rejected within a reasonable time after the time of filing. The above requirements have been supplemented from time to time, or what we might term as generally "stepped up" in keeping with safety to the public and greater efficiency for the user. Let us consider for just a moment what we mean by gradually "stepping up" our requirements, and consider the appliances that are necessary for a barbecue stand, such as a coffee maker, a toaster, a carbonator, a bottle cooler, signs, refrigeration, a sandwich toaster, a meat slicer and fans or air-conditioning and many other electrical appliances which may be used. We check the plans and specifications to see if these services have been provided, and if not, the plans are sent back to the architect so that he may give further consideration and either provide for these electrical appliances or state how the work will be performed.

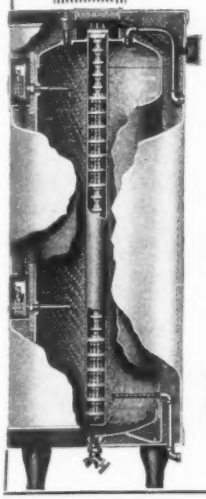
Other special occupancies such as drug stores, beauty parlors,

SEPCO

1915 1940

Twenty-five years of Specialization in Electric Water Heaters

Only SEPCO has:



Hi-Speed, No-Burn-Out Unit

Hard, scale-forming water and accidental 'dry' operation has no effect on this heating unit. Fastest heating due to internal circulation.

Genuine Cork Insulation

Retains original high efficiency permanently —uneffected by Moisture will not settle; vermin proof.

Vapor Tension Thermostats;

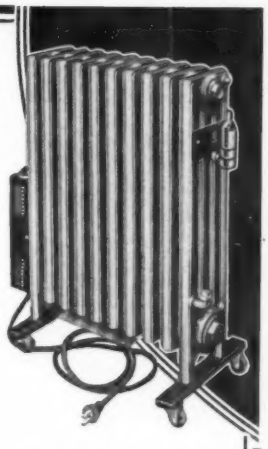
Principal used in all High Grade Temperature Instruments insures instant and accurate control.

Write today for complete details of our Silver Anniversary Models.

AUTOMATIC ELECTRIC HEATER COMPANY Pottstown, Penna.

14 Distributors Serving the South
Southern Division Headquarters
P. O. Box 1707 Birmingham, Ala.

Handy Heat On Wheels



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BEDROOMS
SICK ROOMS
AND SUN PORCHES

or any room where you need occasional, or quick extra heat. Plug in a Cord and there in a jiffy is Radiator Steam Heat. Thermostatic control. Automatic cut-off insures low current cost.

Made in 7 sizes for 110 or 220 volts A.C. or D.C. current. The three larger sizes with no castors, for fixed locations. Shipment within 48 hours. Send for folder ES-1-40.

Burnham Boiler Corporation
IRVINGTON, NEW YORK

the hotel preferred

hotel metropole

a stopping place modern in every detail, yet maintaining a friendly atmosphere and hearty hospitality • preferred by experienced travelers • dining room • garage adjacent • rooms from $1.50 • with bath from $2.50

cincinnati, ohio

CARTER COMFORT CLEVELAND

..3 C's

YOU CAN PROFITABLY REMEMBER

It's an easy rule to remember when you come to Cleveland. Head right for friendly Hotel Carter and you're sure to enjoy your stay in this friendly city.

600 outside rooms. All with bath and circulating ice water.
3 air-conditioned restaurants.
EXCELLENT CONVENTION FACILITIES
Single from $2.75 • Double from $4.00

HOTEL CARTER

Prospect near Ninth, Cleveland

J. BINGHAM MORRIS, Managing Director
Affiliated with American Hotels Corporation of N. Y.
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New SELLING MISSIONARIES!

HELPS YOU "PRE-SELL" PROSPECTS

● Thousands of progressive business firms rely on Autopoint pencils to sell new ideas, open accounts, build goodwill! Your imprinted sales message is seen many times daily. The Autopoint pencil is *different!* Has Grip-Tite Tip . . . leads can't twist, wobble or fall out. Business Gift Catalog and valuable "37 Sales Plans" book sent to executives.

No. 52GS—New DeLuxe Autopoint Pencil has gold filled trim and inlaid crown on cap and tip. Made of BAKELITE molding material. Available for standard or Real Thin Lead.

246

No. 246—Cigador—Combination cigarette server-ash tray. Cigarette pops up with twist of top. Holds 20 cigarettes.

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THE BETTER PENCIL
REG. TRADE MARK

52GS

AUTOPOINT COMPANY
1809 West Foster, Chicago, Ill.

THAT'S WHERE TO STAY IN ST. LOUIS!
HOTEL Mayfair
DOWNTOWN - REAL FOOD AND SERVICE - NEARBY PARKING - PRIVATE BATH RADIO RECEPTION

In St. Louis, Hotel Mayfair is the choice of seasoned travelers. They appreciate its downtown location and enjoy its friendly, restful atmosphere, courteous service, comfortable rooms and its restaurants where fine food and drink are traditional.

Every room has private bath, guest-controlled radio. Rates: 50% of all rooms $3.50 or less, single; $5.00 or less, double.

HOTEL
Mayfair
Eighth & St. Charles • St. Louis, Mo.
Nearby Parking and Garages

restaurants, etc., present different wiring problems, and if not properly provided for during construction, the occupant will install open wiring throughout the building which may create a hazard. If the electrical contractor has to install additional branch circuits and increase the service before the building is occupied, this creates a feeling between the owner and contractor which generally leads to an unpleasant discussion. The electrical industry must realize that the building divisions have for many years checked all proposed structures with competent engineers before the building permit was issued. Electrical wiring layouts need the same care.

Time does not permit me to go into any lengthly detail of the results obtained, but we consider that the residential wiring has increased 50 to 60 percent, and wiring installations in buildings costing from $15,000 to $50,000 have increased from 200 to 300 percent. Realizing that this jump in wiring cannot be entirely credited to the present rules and regulations, I asked several electrical contractors the reason for the increase. Many reasons were given, such as "the architect now calls electrical engineers and electrical contractors for advice and assistance in laying out electrical wiring plans," "Building occupational needs are considered by the contractor and electrical engineer, and wiring suggestions are in accord with these needs."

Sound Investment In Futures

(*Continued from page* 17)

Reserves are given special courses in cookery and appliance operation. One of the most interested groups with which the San Antonio Public Service Company home service division works is the group of young brides and brides-to-be from the ages of eighteen to perhaps twenty-three. The interest of this group in homemaking during school years was of a transitory nature or was crowded out by other seemingly more important activities. Immediately after the ring goes on that certain finger they get panicky. The job of keeping a house seems like a big unanswerable problem. It is the only unpleasant thought in their romantic dreams of marriage and a home.

The home service division of this utility company believes that it is a part of their job to show these young prospective homemakers how interesting the profession of homemaking can be when electric appliances carry the heavy part of the work. In 1939, classes for brides and brides-to-be were inaugurated in which they could not only learn by actual practice the fundamentals of cookery but also get first-hand information on labor-saving, leisure-bringing electric appliances. Each class is limited to six. The first class was well attended and word of mouth publicity did the rest. Their schedule is filled throughout the year and there is always a waiting list.

The San Antonio Public Service Company does not sell appliances. Consequently, it is not customary to check up on appliance sales as a result of these classes. However, out of curiosity, they did check up on one group of brides classes and found these results. In a class of six, thirteen appliances were purchased during or soon after the course.

From their experience, the San Antonio Public Service Company is convinced that the youth of today is the homemaker of tomorrow, or at most day after tomorrow. Therefore, youth constitutes a valuable potential market. Investment now in these futures will pay dividends not only in appliance sales but in increased kilowatt-hour consumption in those future years after these youngsters become Mr. and Mrs. American Citizen in the community.

Careful Planning for Christmas Campaign

(*Continued from page* 14)

proved or disapproved.

"We put on special merchandising events wherein we offer bonuses to those salesmen who go over their quotas. We prefer this method to that of holding sales contests since it offers every salesman an opportunity to make a little extra money for himself, and does not confine the rewards to just a few.

"Good planning is required for good results. We map out our plans early so we will all know just what must be accomplished. We have our meetings and coach our salesmen in what is expected of them. And, when the returns come in, we see to it that the salesmen are properly rewarded for their good work. These are the fundamentals that make such campaigns successful."

You can save money with

CHINALAK

As is the case with all other types of merchandise, insulating varnish is sometimes bought on a basis of price. Doubtless, you may be able to shop around and save pennies on the price per gallon with a competitive material but do you really save in the final analysis?

If you use DOLPH'S CHINALAK Black Baking arnish on all your motor repair work, you can save money in many ways. Often two coats of CHINALAK will suffice where three or more of an inferior product will be required. You need use no oilproof finishing varnish for CHINALAK is absolutely oilproof. The chance of rejects or premature breakdown is minimized thereby increasing customer goodwill as well as saving money for you.

Today, more than ever before, motors must perform—failure cannot be tolerated. If you use CHINALAK on all motor windings you can guarantee your work with confidence. Investigate the outstanding qualities of this remarkable insulating varnish today. Write or wire us collect.

JOHN C. DOLPH CO.

Insulating Varnish Specialists

166 Emmett St. Newark, N. J.

INSTANTANEOUS *Electric* HEATERS

HOT or COLD WATER from the SAME FAUCET—when you want it.

3 SECONDS from COLD to HOT WATER

• • • The Instantaneous Electric Water Heater is not a portable lamp socket device, but—as shown—is a compact, self-contained apparatus (10½x4¼ inches). Quickly and inexpensively installed. Operates on AC or DC.

Approved by Underwriters Laboratories, Inc.

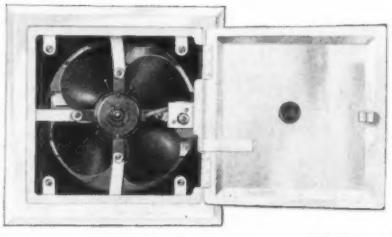
Manufactured By

THE ELECTRIC HEATER COMPANY
BRIDGEPORT, CONNECTICUT, U. S. A.

C. B. ROGERS

ELECTRICAL HEATING ENGINEER
CHROMALOX
ELECTRICAL HEATING UNITS
and
CHROMALOX
EQUIPPED PRODUCTS

1000 PEACHTREE STREET
ATLANTA, GEORGIA



$21.50
List

EVERY KITCHEN NEEDS A SIGNAL VENT FAN—

Models to fit walls 6" to 30", with a list price for 110-Volt A.C. 60-cycle, for 6" to 11½" walls, $21.50, the automatic built-in type, shown above for permanent installation, is telescopic in design. Can be installed in new or old houses. Easy to install, 10" quiet type fan blades. Door operated switch. Totally enclosed motor. Automatic weather—tight shutters. Air displacement 650 C.F.M. Finish of inside section and door is white; fan is brown with polished aluminum shutter vanes. Write for details today.

SIGNAL ELECTRIC MFG. CO.
MENOMINEE, MICHIGAN

SIGNAL

Branch Offices:
W. E. Hopper
357-59 Marietta St., Atlanta, Ga.
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Santa Fe Bldg., Dallas, Texas

THEY FIT ALL RANGES!

CHROMALOX UNITS

With a small stock of these units you can do quick replacement jobs, cut your inventory, and satisfy customers.

Sell Chromalox - equipped ranges, too—they're sure to make a hit with range buyers. Write for the range salesman's handbook—"How to Sell More Ranges".

See nearest representative

ATLANTA, Ga.—C. B. Rogers, 1000 Peachtree St.
DALLAS, Texas—Elgin B. Robertson, 1215 N. Zangs Blvd.
RALEIGH, N. C.—W. R. Phillips.
OKLAHOMA CITY, Okla.—Paul Berry, 3128 N. W. 26 St.

EDWIN L. WIEGAND CO., 7600 Thomas Blvd., Pittsburgh, Pa.

ADVERTISER'S INDEX

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